

SOCIO-ECONOMIC FACTORS CONTRIBUTING TO EXCLUSION OF WOMEN FROM MATERNAL HEALTH BENEFIT IN ABUJA, NIGERIA

by

TAJUDEEN OYEYEMI OYEWALE

submitted in accordance with the requirements

for the degree of

DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

HEALTH STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

Supervisor: PROF TR MAVUNDLA

February 2014

Student number: **35311592**

DECLARATION

I declare that the thesis on **SOCIO-ECONOMIC FACTORS CONTRIBUTING TO EXCLUSION OF WOMEN FROM MATERNAL HEALTH BENEFIT IN ABUJA, NIGERIA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.



Dr Tajudeen Oyeyemi OYEWALE

5th FEBRUARY, 2014

SOCIO-ECONOMIC FACTORS CONTRIBUTING TO EXCLUSION OF WOMEN FROM MATERNAL HEALTH BENEFIT IN ABUJA, NIGERIA

STUDENT NUMBER: 35311592
STUDENT: DR TAJUDEEN OYEYEMI OYEWALE
DEGREE: DOCTOR OF LITERATURE AND PHILOSOPHY
DEPARTMENT: HEALTH STUDIES, UNIVERSITY OF SOUTH AFRICA
SUPERVISOR: PROF TR MAVUNDLA

ABSTRACT

The study was conducted to describe how socio-economic characteristics (SEC) of women affect their utilization of maternal healthcare services in Abuja Municipal Areas Council (AMAC) in Abuja Nigeria.

A non-experimental, facility-based cross-sectional survey was done. Data was collected using structured interviewer administered questionnaire in 5 district hospitals in AMAC. Sample size of 384 was calculated *a priori* based on the assumption that 50% of the target population utilized maternal healthcare services during their last pregnancy. Equal allocation of samples per facility was done. The ANC register was used as the sampling frame and proportionate allocation of samples per clinic days was undertaken in each facility. Data analysis included descriptive statistics, cross tabulations and measures of inequality. Logistic regression analysis was used to test the hypothesized relationship between socioeconomic characteristics (predictors) and maternal healthcare service utilization.

Other than birth order that showed consistent effect, the results of this study indicated that the predictive effect (predisposing and enabling factors) of the SEC of women included in this study (age, education, birth order, location of residence, income group and coverage by health insurance) on maternal healthcare service utilization were not consistent when considered independently (bivariate analysis) as opposed to when considered together through logistic regression. In addition, the study revealed that there was inequality in the

utilization of maternal healthcare services (ante-natal care - ANC, delivery care and post natal care - PNC, and contraceptive services) among women with different SEC, and the payment system for maternal healthcare services was regressive.

Addressing these predictors in the natural co-existing state (as indicated by the logistic regression) is essential for equitable access and utilization of healthcare during pregnancy, delivery and the postnatal period, and for contraceptive services in AMAC, Abuja Nigeria. Targeted policy measures and programme actions guided by these findings are recommended to optimise returns on investment towards achieving national and global goals on maternal health in Nigeria.

Keyword:

Antenatal Care (ANC), Contraceptive Services, Delivery Care, Inequality, Maternal Health Benefit, and Post Natal Care (PNC), and Socio-Economic Characteristics (SEC).

AKNOWLEDGEMENTS

I would like to give thanks to the following people for their invaluable support and unending encouragement:

- Professor TR MAVUNDLA, my supervisor, for all he taught me and for guiding me through many years of my studies
- Professor S HUMAN and all the lecturers at the Department of Health Studies at UNISA
- My wife Mrs. Bimpe Aderinre OYEWALE, and my sons Ibraheem and Imran OYEWALE, for their understanding, encouragement and support
- Mr. and Mrs. BWAKIRA for their unique support all through my studies and carrier;
- My friends: Dr D MULENGA, Ambassador M SIDIKOU, Dr BG REYNOLDS, Dr R LIMLIM, Mr O AJIA, Dr J KAYITA, Dr MH AMIRI, Mr M SAINT-LOT, Dr B ALMAROOF, Dr A YUSUF, Dr I ACHOBA, Ms L MVONO, Dr CC NORONAH, Dr P VILLENEUVE, and Prof BA OYE-ADENIRAN, for their support in different ways
- M. A OLUNLOYO, for her support in coordinating field level data collection;
- Dr K OYEDIRAN and Prof A FATUSI, for their continual support and encouragement throughout this study;
- Staff of the FCT Department of Health and the management of the general hospitals where data collection took place
- Mr T ADEBAMBO and Dr S ADEBAYO who helped with data quality control, and all the field level personnel, for their assistance; and Dr T ADESANMI who helped with editing of the report.

To you all, my sincere thanks and gratitude.

Dedication

This work is dedicated to God Almighty, the Lord of the worlds, who has granted me the gift of life and opportunity to complete this study;

my parents: Mr Jimoh OYEWALE and Mrs Mulikat OYEWALE

and

Mrs Cyrilla BWAKIRA for believing in me

TABLE OF CONTENT

	Pages
Dedication	
Declaration	
Acknowledgements	
Abstract	
Table of Contents.....	i
List of Tables	x
List of Figures	xiii
List of Annexures	xv
List of Abbreviations.....	xvi
 CHAPTER 1	 1
Orientation to the Study	1
1.1 Introduction	1
1.2 Background Information about the Research	2
1.2.1 Background to the Research Problem.....	2
1.2.2 Overview of the national health care system in Nigeria	3
1.2.3 Pattern of Exclusion of Pregnant Women from Maternal Healthcare in Nigeria	5
1.3 Research Problem	6
1.4 Aim of the Study.....	7
1.4.1 Research Purpose	7
1.4.2 Research Objectives	7
1.5 Significance of the Study.....	8

1.6	Definitions of Key Terms	9
1.6.1	Health Disparities / Inequalities	9
1.6.2	Maternal Health Benefit.....	9
1.6.3	Maternal Mortality	9
1.6.4	Socio-Economic Status	10
1.7	Foundation of the Study	10
1.7.1	Conceptual Framework	10
1.7.2	Assumptions underlying the Research	13
1.8	Research Design and Method.....	14
1.9	Scope of the Study	14
1.10	Structure of the Report.....	15
1.11	Conclusions	16
CHAPTER 2	.....	17
Literature Review	.....	17
2.1	Introduction	17
2.2	Situation of Maternal Health	18
2.2.1	Measures of Maternal Health	18
2.2.2	Trends in Maternal Mortality	19
2.2.3	Causes of Maternal Death.....	22
2.3	Determinants of Maternal Mortality.....	23

2.3.1	Conceptual Frameworks for Assessing Determinants of Maternal Mortality	24
2.4	Maternal Healthcare Services in Nigeria	26
2.4.1	Antenatal Care (ANC)	27
2.4.1.1	Information on Signs of Pregnancy Complications	27
2.4.1.2	Routine Blood Pressure and Urine Sugar Measure	28
2.4.1.3	Other ANC Interventions	28
2.4.1.4	Disparity in Access and Utilization of ANC in Nigeria	31
2.4.2	Delivery Care	33
2.4.2.1	Disparity in Access and Utilization of Skilled Birth Attendants in Nigeria	34
2.4.3	Post Natal Care.....	36
2.4.3.1	Disparity in Access and Utilization of PNC in Nigeria	37
2.4.4	Family Planning (Contraceptive) Services.....	39
2.4.4.1	Disparity in Access and Utilization of Family Planning Services in Nigeria	40
2.5	Factors Influencing Utilization of Maternal Health Services	42
2.5.1	Predisposing Characteristics.....	42
2.5.1.1	Demographic Characteristics	42
2.5.1.2	Social Structures.....	45
2.5.1.3	Health Belief.....	46
2.5.2	Enabling Characteristics.....	47
2.5.2.1	Family Resources	47
2.5.2.2	Community attributes	50

2.5.3	Illness Level	52
2.6	Conclusion	53
CHAPTER 3	.....	54
Research Design and Methods	.....	54
3.1	Introduction	54
3.2	Research Design	54
3.2.1	Descriptive Study	55
3.3	Research Method.....	56
3.3.1	Sampling.....	56
3.3.1.1	Study Population	57
3.3.1.2	Sample Size Determination.....	60
3.3.1.3	Subject Selection	61
3.3.2	Data Collection.....	62
3.3.2.1	The Survey Instrument.....	62
3.3.2.2	Content of the Survey Instrument.....	64
3.3.2.3	Pre-testing of the Survey Instrument	66
3.3.2.4	Data Collection Process.....	66
3.3.3	Ethical Considerations in Data Collection.....	67
3.3.3.1	Right to Full Disclosure about the Research.....	68
3.3.3.2	Right to Privacy and Refusal to Participate	68

3.3.3.3	Right to Anonymity and Confidentiality	69
3.3.3.4	Right not to be harmed in any Manner	69
3.4	Data Processing, Analysis and Management	69
3.4.1	Data Processing.....	69
3.4.2	Data Analysis and Management.....	70
3.4.2.1	Descriptive Statistics	70
3.4.2.2	Cross Tabulations	71
3.4.2.3	Measures of Inequality	74
3.4.2.4	Multivariate Analysis	75
3.5	Measures to Assure Reliability and Validity	78
3.5.1	Reliability	78
3.5.1.1	Investigator Consistency	78
3.5.1.2	Standardized Condition under which Measurement Occurred.....	79
3.5.1.3	Relevance of the Study to Research Subjects.....	79
3.5.1.4	The Measurement Instrument	79
3.5.2	Validity	80
3.5.2.1	Validity of the Survey Instrument.....	80
3.5.2.2	External Validity	81
3.6	Conclusion	81

CHAPTER 4	83
Analysis, Presentation and Description of the Research Findings.....	83
4.1 Introduction	83
4.2 Background Characteristics of Respondents.....	83
4.3 Description of Utilization of Maternal Healthcare Services among Respondents.....	89
4.3.1 Contraceptive Services among Respondents.....	89
4.3.1.1 Knowledge of Contraceptive Methods	89
4.3.1.2 Reported Experience of Ever Usage of Contraceptive Methods	92
4.3.2 Antenatal Care Services among Respondents	94
4.3.3 Delivery Care and Postnatal Care Services among Respondents	96
4.4 Determinants of Quality Maternal Healthcare Services Utilization among Respondents.....	98
4.4.1 Quality Maternal Healthcare Services Utilization among Respondents.....	98
4.4.2 Relationship Between Quality Maternal Healthcare Service Utilization and Socio-Economic Characteristics of Respondents	100
4.4.2.1 Maternal Age.....	100
4.4.2.2 Birth Order	101
4.4.2.3 Maternal Education	103
4.4.2.4 Location of Residence.....	104
4.4.2.5 Health Insurance Coverage.....	105
4.4.2.6 Household Income	106

4.5	Measures of Inequality in Maternal Healthcare Services among Respondents....	107
4.5.1	Inequality in the Utilization of Maternal Healthcare Services	108
4.5.2	Vertical Equity in Direct Payment for Maternal Healthcare Service Utilization	112
4.6	Effect of Socio-Economic Characteristics on Quality Maternal Healthcare Service Utilization among Respondents	114
4.6.1	Factors Affecting Utilization of Quality Contraceptive Services.....	115
4.6.2	Factors Affecting Utilization of Quality ANC Services	118
4.6.3	Factors Affecting Utilization of Skilled Attendants at last Birth	121
4.6.4	Factors Affecting Utilization of PNC from Medical Personnel	123
4.7	Overview of Research Findings.....	126
4.8	Conclusion	128
CHAPTER 5	.....	129
Conclusions and Recommendations	.....	129
5.1	Introduction	129
5.2	Research Design and Method.....	129
5.3	Conclusions	130
5.3.1	Utilization and Inequalities in Maternal Healthcare Services among Women of different Socio-Economic Characteristics in AMAC, Abuja, Nigeria	131
5.3.1.1	Utilization of Contraceptive Services	131
5.3.1.2	Utilization of Antenatal Care services	132
5.3.1.3	Utilization of Delivery Care and Postnatal Care Services	133

5.3.2	Socio-Economic Predictor of Utilization of Maternal Healthcare Services among Women in AMAC, Abuja Nigeria.....	135
5.3.2.1	Predisposing Predictors to Maternal Healthcare Service Utilization.....	135
5.3.2.2	Enabling Predictors for Maternal Healthcare Service Utilization	136
5.4	Recommendations	137
5.4.1	Recommendations to Improve Coverage of Maternal Healthcare Service Utilization among Women in AMAC, Abuja, Nigeria	138
5.4.1	Recommendations for Further Studies	139
5.5	Contribution of the Study.....	140
5.6	Limitation of the Study.....	141
5.7	Conclusion	142
	LIST OF REFERENCES	143

LIST OF TABLES

	Pages
Table 1.1: Key Information on Disparities in Maternal Healthcare Service Indicators for Women (15 – 49 year) in Nigeria	3
Table 1.2: Contextual Maternal Healthcare Services to Reduce Maternal Deaths	13
Table 2.1: Statistical Measures of Maternal Mortality.....	19
Table 2.2: Definition of Pregnancy-Related Death	20
Table 2.3: Regional Trends in Maternal Mortality between 1990 and 2008.....	20
Table 2.4: Proportion of Women Receiving ANC from skilled providers by Different Socio-Economic Characteristics in Nigeria	32
Table 2.5: Proportion of Women Delivered by Skilled Personnel at Birth by Different Socio-Economic Characteristics in Nigeria	35
Table 3.1: Population Distribution in Abuja, Nigeria by Area Councils	59
Table 3.2: Allocated Sample Size per ANC Clinic Days.....	62
Table 3.3: Definition and Adjustment to Stratifiers used for Bivariate Analysis.....	72
Table 3.4: Definition and Classification of Dichotomous Measure of Quality Maternal Healthcare Service Utilization	73
Table 3.5: Classification of Variables in Logistics Regression Analysis and their Respective Values	76
Table 4.1: Socio-Demographic Characteristics of the Respondents (N = 384).....	84
Table 4.2: Employment History of Respondents within 24 Months of the Survey (N = 384)	86
Table 4.3: Characteristics of the Annual Income of the Respondents (N = 384)	86

Table 4.4:	Income Classification of Respondents (N = 384)	87
Table 4.5:	Pregnancy History and Birth Order of Respondents (N = 384).....	87
Table 4.6:	Percentage of Respondents with Knowledge of Contraceptive Methods by Background Characteristics (N = 384)	91
Table 4.7:	Percentage of Respondents who Used ANC Services (from any provider) during their last pregnancy by Background Characteristics (N = 384)	94
Table 4.8:	Percentage of Respondents who Ever Used ANC by Service Provider, Facility and Satisfaction Level (n = 291)	96
Table 4.9:	Percentage of Respondents who Delivered their last Pregnancy at Term by Service Provider, Facility and Satisfaction Level (n = 256)	97
Table 4.10:	Percentage of Respondents who Received PNC after their last Delivery by Service Provider and Timing of Service (n = 249)	98
Table 4.11:	Classification of Respondents by Receipt of Quality Maternal Healthcare Services Utilized (N = 384)	99
Table 4.12:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Age of Respondents (N = 384)	101
Table 4.13:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Birth Order of Respondents (N = 384)	102
Table 4.14:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Education Level of Respondents (N = 384)	103
Table 4.15:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Location of Residence of Respondents (N = 384)	104
Table 4.16:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Health Insurance Coverage of Respondents (N = 384)	106
Table 4.17:	Cross Tabulation of Quality Maternal Healthcare Service Utilization against Income Group of Respondents (N = 384)	107

Table 4.18:	Equity in Utilization of Quality Maternal Healthcare Service Utilization against Income Group of Respondents.....	108
Table 4.19:	Characteristics of the Total Direct Payment for Maternal Healthcare Service Utilization among Respondents (N = 384).....	113
Table 4.20	Tolerance and Variance Inflation Factor (VIF) for Stratifiers (independent variable).....	115
Table 4.21	Logistic Regression Model of Contraceptive Services Received by Respondents (N = 384).....	116
Table 4.22	Logistic Regression Model of Utilization of Ante-Natal Care Services by Respondents (N = 384).....	119
Table 4.23	Logistic Regression Model of Utilization of Skilled Attendants at Last Birth by Respondents (N = 384).....	122
Table 4.24	Logistic Regression Model of Utilization of Post-Natal Care Services by Respondents (N = 384).....	124

LIST OF FIGURES

	Pages
Figure 1.1: Pattern of Exclusion of Pregnant Women from Maternal Healthcare Services in Nigeria.....	5
Figure 1.2: Framework for Analysing Determinants of Maternal Mortality	11
Figure 1.3: Individual Determinants of Health Service Utilization	12
Figure 2.1: Framework for Examining Quality of Essential Obstetric Care	25
Figure 2.2: The Three Delay Model	26
Figure 2.3: Pattern of Utilization of ANC Service provided by skilled provider in Nigeria	31
Figure 2.4: Pattern of Utilization of Skilled Birth Attendants in Nigeria	36
Figure 2.5: Pattern of Utilization of Post-Natal Care within 2 Days of Birth in Nigeria....	38
Figure 2.6: Pattern of Utilization of Modern Contraceptive Method (Family Planning) among Married Women in Nigeria	41
Figure 3.1: Map of the Federal Republic of Nigeria Showing States and the Federal Capital Territory (FCT) – Abuja	58
Figure 3.2: Map of the Federal Capital Territory (FCT) – Abuja Showing the Area Councils.....	60
Figure 4.1: Chart of the Percentage Distribution of Respondents by Religious Affiliation (N = 384)	85
Figure 4.2: Chart of Type of Health Insurance among Respondents (n = 91).....	88
Figure 4.3: Distribution Curve of Knowledge of Contraceptive Methods among Respondents (N = 384).....	89
Figure 4.4: Chart of Percentage of Respondents by Contraceptive Methods Ever Used (n = 201).....	93

Figure 4.5:	Chart of Percentage of Respondents by Location where Contraceptive Methods was Procured (n = 201)	93
Figure 4.6:	Concentration Curve of Utilization of Modern Contraceptive Method	109
Figure 4.7:	Concentration Curve of Utilization of ANC from Medical Skilled Providers ..	110
Figure 4.8:	Concentration Curve of Delivery by Skilled Attendants	111
Figure 4.9:	Concentration Curve of Receipt of PNC from Medical Personnel.....	112
Figure 4.12:	Lorenz Curve of Income and Direct Maternal Healthcare Expenditure Concentration Curve	114

LIST OF ANNEXURES

Annex A:	Research Questionnaire
Annex B:	Record of Informed Consent
Annex C:	Ethical Clearance from Federal Capital Territory (FCT) – Abuja Health Research Ethics Committee (FHREC)
Annex D:	Ethical Clearance University of South Africa Health Studies Higher Degree Committee (HSHDC), College of Human Sciences

LIST OF ABBREVIATIONS

AFHS	Adolescent Friendly Health Services
AIDS	Acquired Immune Deficiency Syndrome
AMAC	Abuja Municipal Area Council
ANC	Antenatal Care
ART	Anti-Retroviral Treatment
CHEW	Community Health Extension Workers
CI	Concentration Index
C.I	Confidence Interval
CSPPro	Census and Survey Processing System
EOC	Essential Obstetric Care
FCT	Federal Capital Territory
FGN	Federal Government of Nigeria
FHREC	Federal Capital Territory Health Research Ethics Committee
FMOH	Federal Ministry of Health
FOS	Federal Office of Statistics now National Bureau of Statistic
HERFON	Health Reform Foundation of Nigeria
HIV	Human Immuno-deficiency Virus
HMIS	Health Management Information System
HSHDC	Health Studies Higher Degree Committee
ICD	International Classification of Diseases - 10
ICDP	International Conference on Development and Population
LAM	Lactational Amenorrhea
LGA	Local Government Areas
LSHTM	London School of Hygiene and Tropical Medicine
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MICS	Multiple Cluster Indicators Survey
MMR	Maternal Mortality Ratio
MMRate	Maternal Mortality Rate
NARHS	National HIV/AIDS and Reproductive Health Survey
NHREC	Nigerian Health Research Ethics Committee

NBS	National Bureau of Statistics
NDHS	National Demographic and Health Survey
NHIS	National Health Insurance Scheme
NPC	National Planning Commission
OOPP	Out-Of Pocket Payment
PCA	Principal Component Analysis
PHC	Primary Health Care
PIH	Pregnancy Induced Hypertension
PMTCT	Prevention of Mother to Child Transmission of HIV
PNC	Postnatal Care
RCT	Randomized Clinical Trial
SEC	Socio-Economic Characteristics
SES	Socio-Economic Status
SMIAG	Safe Motherhood Inter-Agency Group
SPSS	Statistical Package for Social Sciences
SSA	Sub-Saharan Africa
TBA	Traditional Birth Attendants
TFR	Total Fertility Rate
THE	Total Health Expenditure
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNISA	University of South Africa
USS	Ultra-Sound Scan
VIF	Variable Inflation Factor
WHO	World Health Organization

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Equitable access and utilization of maternal healthcare services is a critical input towards the achievement of **Millennium Development Goal (MDG) 5** in Nigeria. **Maternal Mortality Ratio (MMR)** in Nigeria was estimated in the six-year period preceding the 2008 **Nigeria Demographic Health Survey (NDHS)** to be 545 deaths per 100 000 live births (NPC 2009:237) and further analysis of the information depicts more concerns on inequality related to **Socio-Economic Status (SES)** of women. According to NPC (2013:21) and NPC (2009:132), socio-economic disparities related to education, income and residence have been reported to affect health seeking behaviour and health outcome for women in Nigeria. This concern has informed the equity-focus of the revised National Health Policy whose underlying principles and value included (i) social justice and equity and the ideals of freedom and opportunity (ii) access to quality and affordable health care as a human right and (iii) equity in health care and in health for all Nigerians (FMOH 2004: 4).

While several efforts to improve maternal health are ongoing in Nigeria, an understanding of the impact of SES of women on the determinants of maternal mortality is essential to address their exclusion from health benefits.

The purpose of this research is to describe how the socio-economic status (SES) of women impacts their reproductive health behaviour, their health status and access to health services as such contribute to their exclusion from maternal health benefit in **Abuja Municipal Area Council (AMAC)** of Abuja, Nigeria.

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH

1.2.1 Background to the research problem

Proper healthcare during pregnancy, delivery and the postnatal period is important for health outcomes for mothers and the new-born. While it has been known that the health care a woman receives during pregnancy, at the time of delivery and soon after delivery is a major determinant of the survival of the mother and the new born, it is worrisome however, that at the time of this study 61% of pregnant women in Nigeria received no **Ante-Natal Care (ANC)** and only 38% of deliveries were assisted by skilled health workers (NPC 2013:22). The 2008 NDHS (NPC 2009:126-135) had reported 36% of pregnant women in Nigeria received no ANC; 39% of deliveries were assisted by skilled health workers; and 56% did not receive **Post-Natal Care (PNC)**. Worse still is the estimated 40% of pregnant women who experienced pregnancy-related health problems during or after pregnancy or childbirth (FMOH 2001:4).

The uptake of ANC, delivery care and PNC services varied among women of different **Socio-Economic Characteristics (SEC)** in Nigeria (NBS 2013:130–145; NPC 2009:126-136; NPC 2013:15-22). Key information from the 2008 NDHS on disparities in maternal healthcare service indicators among women of reproductive age (15 – 49 years) in Nigeria is presented in Table 1.1 as only preliminary report of the 2013 NDHS (NPC 2013:15 – 22) were available as at the time of this study. In addition, the **Multiple Cluster Indicator Survey –MICS** (NBS 2013:130–145) did not include measures on PNC. The observed disparities in Table 1.1 were grounded in the value placed on the education of women, their decision-making power and their economic opportunities. In 2008, the NDHS reported that 54% of Nigerian women aged 15 – 49 years were literate (NPC 2009: 35) and 37% were unemployed in the last 12 months preceding the survey (NPC 2009: 38). The 2011 MICS reported that 67% of young women aged 15 – 24 years were literate in Nigeria (NBS 2013:167).

Table 1.1: Key Information on Disparities in Maternal Healthcare Service Indicators for Women (15 – 49 year) in Nigeria

Socio-Economic Characteristics		Percentage Distribution of Women			
		Received ANC	Delivery in Health Facilities	Delivered by Skilled Provider	Received PNC
Education	No Education	35.7	9.7	11.5	20.1
	Primary	76.7	39.0	44.2	46.8
	Secondary	91.8	66.7	73.4	65.1
	More than secondary	98.3	89.8	93.9	83.6
Wealth Quintile	Lowest	28.6	7.3	8.3	16.5
	Second	46.8	15.1	17.6	24.9
	Middle	71.4	33.2	37.5	41.2
	Fourth	86.3	56.1	63.3	58.9
	Highest	96.9	79.6	85.7	78.1
Location	Urban	87.8	59.4	65.4	62.7
	Rural	52.6	24.7	27.7	32.5
National Average		63.4	35.0	38.9	41.5

(NPC 2009:126-135)

1.2.2 Overview of the national health care system in Nigeria

The national health care system in Nigeria is delivered across three levels of care namely primary, secondary and tertiary level of care (FMOH 2004:9-10).

The primary level of care serves as entry point for patient into the healthcare delivery system in Nigeria and operate at community level. Facilities at this level include health centres and clinics, dispensaries and health posts providing preventive, curative, and promotive and rehabilitative care. Primary health care facilities are typically staffed by nurses, community health workers, **Community Health Extension Workers (CHEW)**, junior CHEW and environmental health officers (FMOH 2007a:15).

The secondary level of health care is available at district, division and zonal levels and offer specialized care to referred patients from the primary health care level. This include

general / district hospitals that provide general medical and laboratory services and well as specialized health services such as surgery, paediatrics, obstetrics and gynaecology. Medical officers (doctors), nurses, midwives, laboratory and pharmacy specialist, and community health officers are the typical staff in the secondary level of health care in Nigeria (FMOH 2007a:15). In practice however, patient in need of care especially for maternal healthcare in Nigeria do enter the health system at both primary and secondary levels of care.

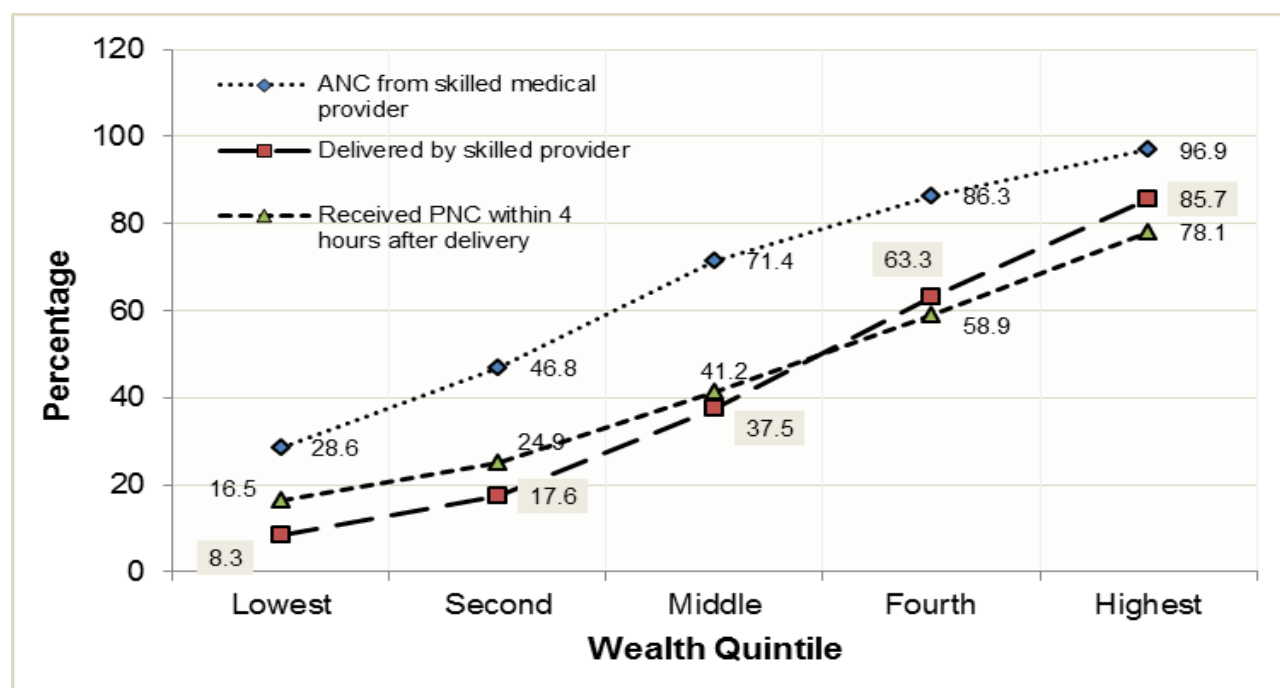
The tertiary level of health care offer highly specialized care to referred patients from both primary and secondary level of care, and are provided in teaching hospitals and federal medical centres distributed across the country. The tertiary level of care have specialized expertise and full-fledge technological capacity (FMOH 2007a:15) that include specialist doctors, nurses, midwives and laboratory and pharmacy specialist.

Distribution of health work force in Nigeria however varies amongst the different categories of health workers, and across the different levels of health care delivery system. Available information in the **Health Management Information System (HMIS)** indicated that there were 30 doctors per 100,000 population in Nigeria compared to 100 nurses and 68 midwives per 100,000 population respectively in 2005 (FMOH 2007b:26). The same report using data from the HMIS of 2005 also noted that only 12% of doctors work at the primary care level.

Payment for health care in Nigeria is mixed, financed by both the government and households (FMOH 2007b:24). The government allocation to health care are disbursed through the national and sub-national budget at the federal, state and local government levels (see chapter 3 for the demographic characteristics and political structure of Nigeria). To improve health care financing and limit the financial burden of health care on households, the **Federal Government of Nigeria (FGN)** introduced the **National Health Insurance Scheme (NHIS)**. Additional information on the NHIS is provided in chapter 2 of this report.

1.2.3 Pattern of exclusion of pregnant women from maternal healthcare in Nigeria

The uptake of ANC (NPC 2009: 126), delivery by skilled health worker at last birth care (NPC 2009: 134) and receipt of PNC services (NPC 2009:136) varied among women of different **Socio-Economic Characteristics (SEC)** in Nigeria. The pattern of exclusion of pregnant women from maternal healthcare services in Nigeria presented in this section was informed by the dual typology defined in the World Health Report 2005 (WHO 2005:29). The construction of access to these maternal healthcare services among women of different wealth quintile in Nigeria presented in Figure 1.1 depict massive deprivation pattern of exclusion from healthcare services utilization with large proportion of the population deprived of care (WHO 2005:29). These sources of exclusion from maternal health benefit for women are consistent with the argument in the 2005 World Health Report (WHO 2005:26), and contribute to the ineffectiveness of the district health system in the areas of access, affordability and quality of **Maternal and Child Health (MCH)** care in Nigeria.



(Data source: NPC 2009:126-136)

Figure 1.1: Pattern of Exclusion of Pregnant Women from Maternal Healthcare Services in Nigeria

The situation is worsened by the poor transportation system and the low public expenditure on health in Nigeria. While the poor transportation system makes referral from one level of care to another an impossible task, low public expenditure on health leads to high **Out-Of Pocket Payment (OOPP)** for health which is often beyond the reach of pregnant women. According to the analysis in HERFON (2006:201), the general expenditure on health by the Government of Nigeria over a specific five-year period (1998 to 2002) was 20% of the **Total Health Expenditure (THE)**. In 2003, the public expenditure on health was less than US\$8 per capita compared to US\$34 recommended globally for low income countries (FMOH 2004:2), while private expenditure on health (mostly through OOPP by households) accounted for 69% of the THE in Nigeria (HERFON 2006:201).

An understanding of how the SES of women affects their maternal health seeking behaviour is therefore important to inform policies and programmes towards the achievement of the MDG 5.

1.3 RESEARCH PROBLEM

In the assessment of equity in malaria treatment in South East Nigeria, Onwujekwe, Uzochukwu, Eze, Obikeze, Okoli and Ochonma (2008:1) argues that the harsh economic situation in Nigeria including the cost of obtaining health services has led many households especially the poor not to seek formal healthcare or delay the time to seek formal care. This economic limitation was further argued to contribute to the increase in informal private health sector providers who often offer very low quality care (Onwujekwe et al 2008:8) and might justify the more than 50% of births delivered at home (NBS 2013:148; NPC 2009:132) as well as the 15% (NBS 2013:145) to 22% (NPC 2009:134) of deliveries attended by **Traditional Birth Attendants (TBA)** in Nigeria. The examination of poverty profile and its consequences on access to health care and human capital development in Akpomuvie (2010:48) further depict the implication of economic hardship on health seeking behaviour in Nigeria. Specifically, Akpomuvie (2010:48) reported that only 8% of household members sought formal consultation for health care during the period of conducting poverty profile in Nigeria.

The complex interplay of the limitations due to the SEC of women and the limited public expenditure on health might justify the assertion by Ferreira (2008:2) that 33% of Nigerians have no access at all to any form of organized modern healthcare services. Thus, a study to describe how SEC of women contribute to their exclusion from maternal health benefit in Nigeria is required. The study will seek to answer the following research questions:

- i. What is the difference in the utilization of maternal healthcare services among women of different SEC?
- ii. What is the pattern of inequality in the utilization of maternal healthcare services among women of different SEC? and
- iii. How does SEC of women affect their utilization of maternal health services?

The findings of this study will be used to inform review of policy, programme and investments in maternal healthcare services in AMAC, and thereafter contribute towards the achievement of both the target of the MDG 5 and the national health target on maternal health in Nigeria.

1.4 AIM OF THE STUDY

1.4.1 Research purpose

The purpose of this research is to describe the impact of socio-economic characteristics (SEC) of women on the determinants of maternal mortality in Abuja Municipal Area Council of Abuja, Nigeria.

1.4.2 Research objectives

The objectives of the research are to:

1. Describe the utilization of maternal healthcare services among women of different SEC in AMAC, Abuja Nigeria;
2. Describe pattern of inequality in the utilization of maternal healthcare services among women of different SEC in AMAC, Abuja Nigeria; and
3. Describe how SEC affects the utilization of maternal health services among women in AMAC, Abuja Nigeria.

1.5 SIGNIFICANCE OF THE STUDY

Whereas Nigeria's population constituted 2% of the world's population in 2002, it accounted for 10% of worldwide maternal deaths during the same year (FMOH 2002:4). According to the review in Okonofua (2010:9), Nigeria account for the highest rates of maternal mortality in the developing world and the country is listed as one of the six countries that account for 50% of the global estimate of maternal death. Going by the current situation, the achievement of the MDG5 and the national health target of reducing by three-quarter the maternal mortality rate in Nigeria between 1990 and 2015 (FMOH 2004:5) may be far from reach in the country.

While several efforts and investments have been made to improve the quality of maternal healthcare in Nigeria, little is known about the impact of SEC of women on reproductive health behaviour, health status and access to health services. Thus current investment might not yield desired results in settings where disparities in access and inequality in health outcomes are not addressed.

This research sought to provide an insight into the influence of SEC of women on the determinants of maternal mortality in AMAC, Abuja Nigeria. The result of this research will contribute to a review of policy, programme and investments in maternal healthcare services in AMAC, and thereafter the achievement of both the target of the MDG 5 and the national health target on maternal health in Nigeria. Specifically in AMAC, key findings of this research will be shared with the department of health to inform the review of departmental action plan and guidelines that prioritize key recommendations in this study on maternal health care. At the national level, the findings of this study comes at a time when the National Strategic Health Development Plan (2010 – 2015) is being evaluated (FMOH, 2010c:90). As such, the findings will serve as inputs into the evaluation, as well as the development of the new National health plan post 2015.

1.6 DEFINITIONS OF KEY TERMS

Key terms used in this research are health disparities / inequalities, maternal health benefit and maternal mortality, and socio-economic status. The operational definitions of these terms in this study are presented below.

1.6.1 Health disparities / inequalities

Guided by the comprehensive definition in Braveman (2006:180), health disparities / inequalities in this study refer to difference in health or in the most important influences on health (socio-economic characteristics) that could potentially be shaped by policies. The definition in this study incorporates the differences between the most advantaged group in a category and all other members of the category, and not only between the best and the worst off groups (Braveman 2006:180; Reutter and Kushner 2010:270). In this study, pregnant women were categorized along different socio-economic characteristics to explore inequality in maternal healthcare service utilization.

1.6.2 Maternal health benefit

Maternal health benefit refers to any intervention to reduce maternal death and include actions to reduce number of pregnancies, complications from pregnancies and the likelihood that a pregnancy related complication will result in maternal death (McCarthy 1997:S18). In this study, the three actions to reduce maternal deaths were contextualized into four maternal healthcare services of contraceptive service, ANC, and delivery care, and PNC (See Table 1.2).

1.6.3 Maternal mortality

According to the Tenth Revision of the International Classification of Diseases (ICD-10), maternal mortality refers to the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO 2004:3). This definition was applied in this research.

1.6.4 Socio-economic status

Socioeconomic status (SES) of women in this study encompasses the woman's status within the family and community, the family status in the community and the community's status (McCarthy 1997:S18). In this study, the variable (SES) was further defined with regards to **Socio-Economic Characteristics (SEC)** of the study population. The SEC included in this study were maternal age, maternal education, household income, marital status, location of residence, and household size (Onwujekwe et al 2008:4) of the pregnant women in AMAC, Abuja, Nigeria.

1.7 FOUNDATIONS OF THE STUDY

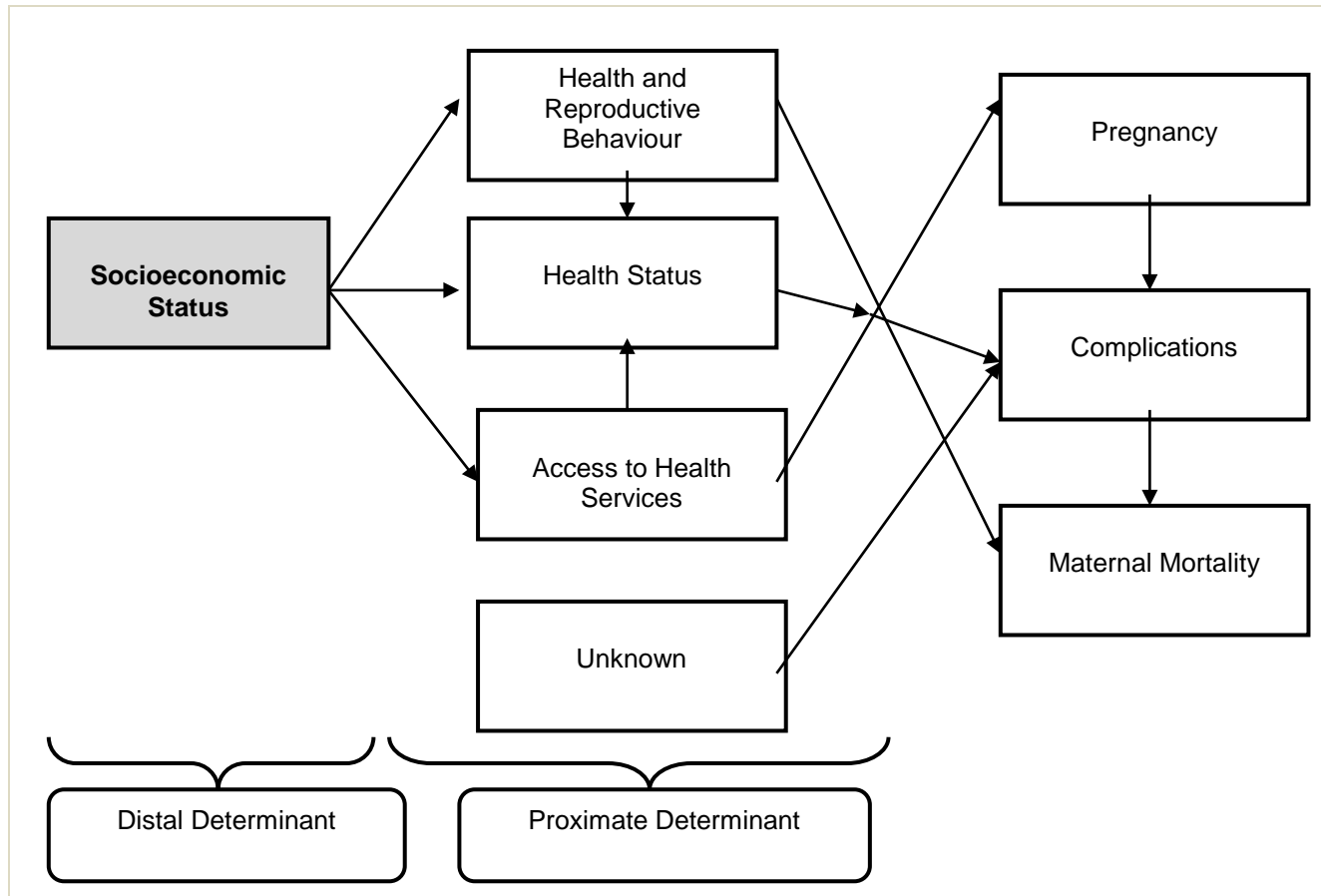
1.7.1 Conceptual framework

The framework for analysing the determinants of maternal mortality in McCarthy (1997:S17) and the behavioural model of health services utilization (Andersen and Newman 2005:12) were used as the conceptual framework for this study. The framework for analysing the determinants of maternal mortality (McCarthy 1997:S17) guided the exploration of how SES of women influence the proximate determinant of maternal mortality and therefore the pathway to reduce maternal death. Complementarily, the behavioural model of health services utilization (Andersen and Newman 2005:12) provided further insight into how the different SEC of women contribute to their exclusion from maternal health benefit.

The proximate determinant of maternal mortality as conceptualized in McCarthy (1997:S17) included:

- Health and reproductive behaviour which encompasses a woman's usage of services such as family planning, prenatal care, and modern care for labour and delivery, harmful traditional practices and illicit abortion as well as her parity;
- Health status comprised the woman's nutritional status (anaemia, height, weight), infections and parasitic diseases (malaria, hepatitis, tuberculosis), and other chronic conditions (like diabetes, hypertension), and prior history of pregnancy related complications;

- Access to health services which include factors such as location of services (for family planning, prenatal care, other primary care and emergency obstetric care), the range of services available, the quality of care, and access to information about the services; and
- Unknown factor which represents the fact that the development of many life-threatening obstetric complications can neither be prevented nor predicted.

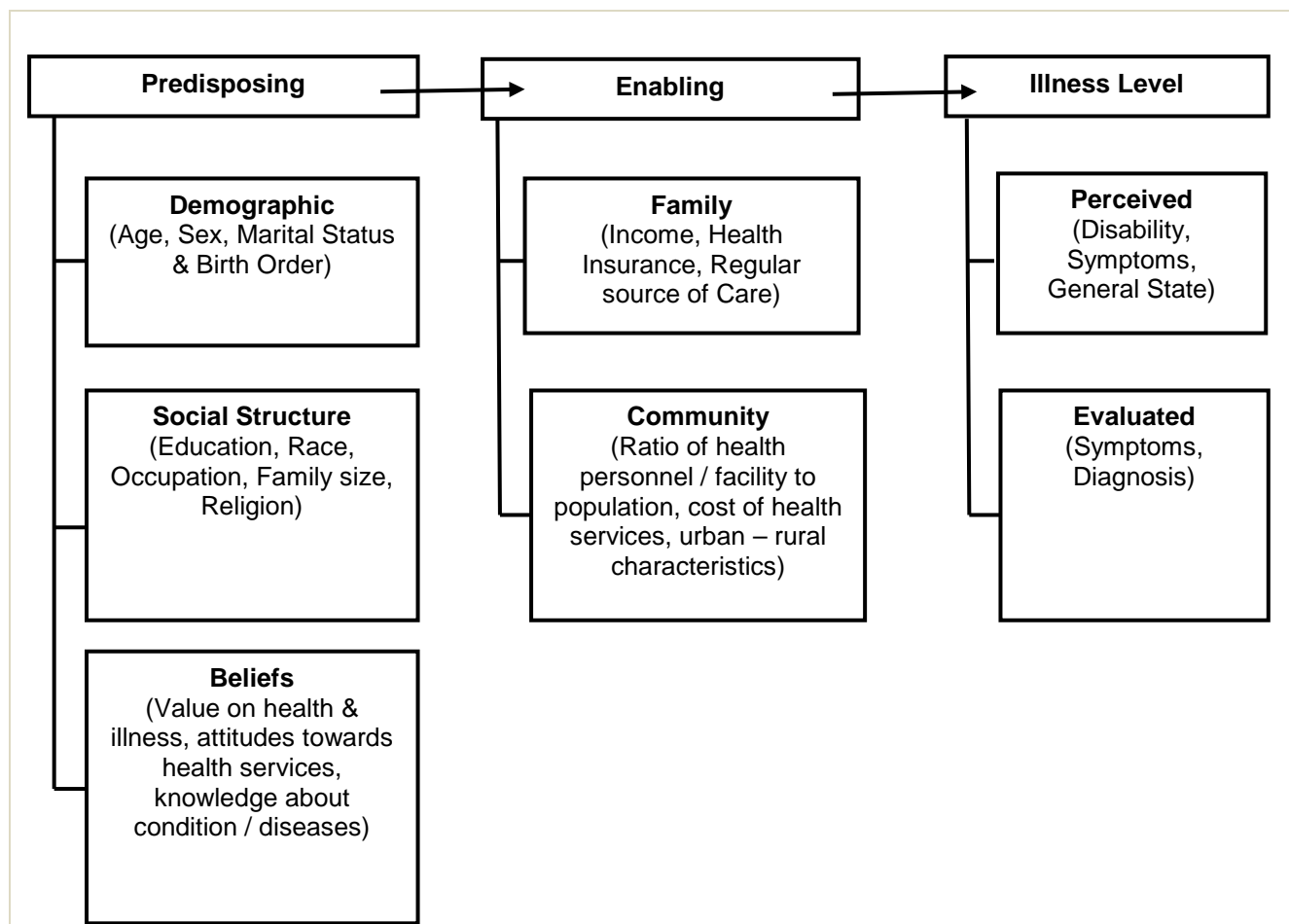


(McCarthy 1997:S17)

Figure 1.2: Framework for Analysing Determinants of Maternal Mortality

As such socioeconomic status of women, conceptualized as the distal determinant of maternal mortality (McCarthy 1997:S18) interplayed with the proximate determinants and to the exclusion of women from maternal health benefit in AMAC, Abuja, Nigeria (figure 1.2).

Complementarily, the behavioural model (Figure 1.3) was based on the assumption that utilization of (maternal) health services is dependent on three categories of individual determinants i.e. (i) predisposition of the individual to use the service (predisposing factor); (ii) the ability of the individual to secure the service (enabling factor); and (iii) the illness level of the individual (Andersen and Newman 2005:12). These three categories of individual determinants were used to further explore SEC of women as they influence the determinants of maternal mortality. Further description of each of the three categories are presented in Chapter 2 of this report.



(Andersen and Newman 2005:14)

Figure 1.3: Individual Determinants of Health Service Utilization

1.7.2 Assumptions underlying the research

In McCarthy (1997:S18), it was argued that any intervention to reduce maternal death must pass through one of three pathways to (i) reduce the number of pregnancies; (ii) reduce the number of complications; or (iii) reduce the likelihood that a complication will result in death. These three pathways were contextualized in Table 1.2 into four maternal healthcare services in this study.

Table 1.2: Contextual Maternal Healthcare Services to Reduce Maternal Deaths

Pathway to Reduce Maternal Death (McCarthy1997: S18)	Contextual Maternal Healthcare Services in this Study
Reduce Number of Pregnancies	Contraceptive Service
Reduce Number of Complications	ANC Service
Reduce Likelihood a complication will result in Death	Skilled Delivery Service at Birth PNC Service

This research was based on the premise that SES of women as a distal determinant of maternal mortality contribute to their exclusion from maternal health outcome. In addition, it was assumed in this research that the SES of women (contextualized in the different SEC) exert different effect on each of the three proximate determinants of maternal health, thus impacting on the number of pregnancies, the number of pregnancy-related complications and the likelihood of maternal death from complications. In section 2.4 of this report, a further elaboration of the different category of individual determinants (SEC of women) was discussed under the conceptual framework for assessing determinants of maternal mortality.

Therefore, an understanding of how SES of women influences the proximate determinants of maternal mortality in AMAC Abuja will guide the design and implementation of an equitable maternal healthcare programme and contribute to the achievement of the maternal health target of the revised National Health Policy in Nigeria (FMOH 2004:5).

1.8 RESEARCH DESIGN AND METHOD

This research is a non-experimental, descriptive survey that explored the impact of SEC of women on the determinants of maternal mortality in AMAC, Abuja Nigeria. The research design was an empirical health facility-based cross-sectional survey.

Women with past pregnancy history irrespective of pregnancy outcome attending ANC clinics in the five district hospitals in AMAC, Abuja Nigeria constituted the study population. Sample size of 384 was calculated *a priori* for the study (Araoye 2003:119). Due to lack of reliable planning data at the department of health for district level population at the time of this study, equal allocation of pregnant women of reproductive age defined in NPC (2009:51) as women aged 15 – 49 years was done per district hospital. The ANC register was used as the sampling frame and proportionate allocation of samples per clinic days was undertaken in each facility. The samples were identified through simple ballot during routine ANC clinic and data collected undertaken via an interviewer administered quantitative data collection instrument developed for the study. The instrument was based on the conceptual framework for this study.

1.9 SCOPE OF THE STUDY

This study was sub-national in scope, focusing on AMAC, the most metropolitan area council in Abuja, Nigeria. AMAC is the area council that hosts the seat of the **Federal Government of Nigeria** (FGN) and populated by Nigerians from different parts of the country. AMAC to some extent is therefore representational of the country. According to the 2006 housing and population census, AMAC with a population of 800,000 accounted for more than 50% of the total population of Abuja (NPC 2010a:36). Although, the information from this study focused on women in AMAC, the diverse population and metropolitan nature of AMAC provide opportunity for applying the findings in this research to the whole of Abuja and to some extent, the whole country.

1.10 STRUCTURE OF THE REPORT

This research report is presented in five chapters: - (1) Orientation to the Study; (2) Literature Review; (3) Research Design and Method; (4) Analysis, Presentation and Description of Research Findings (5) Conclusions, Limitation and Recommendations.

Chapter 1: Orientation to the Study provides an introduction to the study. The chapter analysed the sources and pattern of exclusion of women from maternal health benefit with a focus on the different SEC of women. The chapter also details the aim of the research as well as the foundation for the research.

Chapter 2: Literature Review explored evidence on inequality in maternal health benefit among women of reproductive age group. The review focused on how the different SEC of women influenced their health and reproductive behaviour, health status and access to health services. In addition, the review explored the expenditure in health sector as a source of exclusion from health benefit for women as well as inequalities / disparities in the utilization of maternal healthcare services.

Chapter 3: Research Design and Methods as a chapter outlined the research design. It specifically defined the study population and study sample; the process for data collection, data management and data analysis. The chapter also included description of the ethical considerations in the study.

Chapter 4: Analysis, Presentation and Description of Research Findings detailed the key findings of the research. The findings were clustered around the socio-demographic characteristic of the respondents; the description of the utilization of maternal healthcare services among respondents; pattern of inequality in the utilization of the maternal healthcare services; and description of how SEC affect utilization of maternal healthcare services. A technical discussion of the findings of the research in relation to existing information and trends was also presented.

Chapter 5: Conclusions, Limitations and Recommendations presented the conclusions drawn from the study as well as the limitation of the study. In addition, recommendations formulated based on the findings of the research were presented. The contribution of the research to the body of knowledge on maternal healthcare was also described in the chapter.

1.11 CONCLUSION

The challenges in meeting the MDG5 and the targets for maternal mortality in the revised national health policy in Nigeria were presented in this chapter. It was argued that the differentials in utilization of maternal healthcare services among women of different SEC contribute to the exclusion of women from maternal health benefit in Nigeria. In the next chapter, the review of literature on inequality in maternal health benefit among women of reproductive age group based on the conceptual framework for this study is presented and discussed.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The International Conference on Population and Development (ICPD) that was held in Cairo in 1994 led to a paradigm shift in addressing maternal health from a demographically-driven framework to a reproductive health framework that incorporates reproductive rights (Nanda, Switlick and Lule 2005:1). The reproductive right framework to maternal health is broad and comprehensive, as it incorporates wide range of services to promote maternal health. According to paragraph 8.22 of the ICPD programme of action cited in UNFPA (2004:52), maternal health services comprise education on safe motherhood, effective and focused prenatal care, maternal nutrition programme, adequate delivery assistance that avoids excessive recourse to caesarean sections and provide for obstetric emergency, referral services for pregnancy, childbirth and abortion complications, post natal care and family planning. These various services together with factors such as transportation and financing that affect service utilization were conceptualized in the framework for analysing the determinants of maternal mortality (McCarthy 1997: S17) as the proximate determinants of maternal mortality and was argued in chapter one to be influenced by SES of women – the distal determinant of maternal mortality. Therefore, an understanding of the influence of SES of women on maternal healthcare services is essential to optimize gains in maternal health and contributes to achieving the goal of the millennium declaration on maternal health.

This review of literature focused on the situation of maternal health, organization of maternal healthcare services and the determinants of maternal mortality. The review explored the different SEC of women as they influence the utilization of maternal healthcare services. The review included national and sub-national studies in Nigeria as well as regional and global evidence. Special focus was placed on disparities/inequalities in the utilization of maternal healthcare services among women of different SES by exploring the influence of different SEC of women on different maternal healthcare services.

2.2 SITUATION OF MATERNAL HEALTH

Pregnancy and childbirth are generally times of joy for parents and families. But in many countries and communities, they are also periods of great risk to the health and survival of women. According to UNICEF (2009:2), around 1,500 women die from complications related to pregnancy and childbirth every day. The report also estimated the annual number of maternal deaths worldwide to exceed 500,000 since 1990, amounting to almost 10 million maternal deaths during the ten year period of 1990 to 2009. Similarly, Ronsmans and Graham (2006:1189) noted that an estimated 529,000 maternal deaths occur every year. In economic sense, the review in Richard, Witter and De Brouwere (2008:13) estimated that the global annual loss due to death of mothers and neonates was up to 15 billion US Dollars. At national level WHO (2006) in Richard et al (2008:12-13) estimated that Ethiopia and Uganda lost 95 million US Dollars and 85 million US Dollars respectively to poor maternal health, with country estimate per person per year ranging from US\$1.5 in Ethiopia to almost US\$5 in Senegal.

This section explored the measures and trends of maternal mortality as well as the causes of maternal death with focus on Nigeria.

2.2.1 Measures of maternal health

The measure of maternal health globally has been expressed in terms of maternal death defined in the ICD-10 as the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and size of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (AbouZahr 2003:2). While noting that health and death were interrelated, Nanda, Switlick and Lule (2005:1) argues that efforts that improve maternal health may not necessarily reduce maternal death and vice versa. The review in this report however used maternal death as a measure of maternal health based on the fact that the indicators for maternal health in the millennium declaration (UN 2000:5) as well as the target for maternal health in the Nigeria national health policy (FMOH 2004:5) were expressed in terms of maternal death, specifically MMR. The measures for maternal mortality as well as global and regional trends in maternal mortality are discussed below.

The measure of maternal death in a population is a product of two factors: (i) the risk of mortality associated with a single pregnancy or a single live birth, and (ii) the number of pregnancies or births that are experienced by women of reproductive age (WHO 2010:5). There are four statistical measures for maternal mortality i.e. (i) **Maternal Mortality Ratio** (MMR), (ii) **Maternal Mortality Rate** (MMRate) and (iii) Adult Lifetime Risk of Maternal Death, and (iv) Proportionate Mortality Ratio (see Table 2.1 for definitions). While the MMR depicts the risk of maternal death relative to the number of live births, the MMRate does not only reflect the risk of maternal death per pregnancy or per birth (live birth or stillbirth), but also the level of fertility in the population (WHO 2010:5).

Table 2.1: Statistical Measures of Maternal Mortality

Measurement	Definition
Maternal mortality ratio	Number of maternal death during a given time period per 100,000 live birth during the same time-period
Maternal mortality rate	Number of maternal death in a given period per 100,000 women of reproductive age during the same time-period
Adult lifetime risk of maternal death	The probability of dying from a maternal cause during a woman's reproductive lifespan
Proportionate Mortality Ratio	Maternal death as a proportion of all female death of those of reproductive age – usually defined as 15 – 49 years – in a given time period

(Ronsmans and Graham 2006:1189; WHO 2010:5)

The trend analysis of maternal mortality presented below focused mainly on MMR, as the measure (MMR) was used for defining the targets of the MDG 5 on maternal health (UN 2000:5) and the target for maternal health in the Nigeria National Health policy (FMOH 2004:5).

2.2.2. Trends in maternal mortality

The trend in maternal mortality in this review was based on the concept of 'pregnancy-related death' defined in Table 2.2. The same concept was used in the joint estimate developed by WHO, UNICEF, UNFPA and the World Bank (WHO 2010:4) and the concept included accidental or incidental causes of maternal death in the estimate. In addition, the concept (pregnancy-related death) allows for the measurement of maternal death in settings where accurate information on the causes of death based on medical certification

were not reliable; as well as accommodate the inclusion of indirect maternal death due to HIV (WHO 2010:4).

Table 2.2: Definition of Pregnancy-Related Death

Concept	Definition
Pregnancy-related death	The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death

(ICD-10 in WHO 2010:5)

The concept of pregnancy-related death is therefore ideal for the setting in Nigeria where the HMIS is paper-based and not reliable (Abdulkadir, Yunusa, Tabari, Anas, Ojo, Akinlade, Suleman and Uyobong 2011:857). In addition, there were estimated 3.2 million Nigerians (including pregnant women) infected with HIV in 2010 (FMOH 2010a:49), a further justification for basing this review on pregnancy-related death.

Table 2.3: Regional Trends in Maternal Mortality between 1999 and 2008

Region	1990		2008		Change in MMR between 1990 and 2008 (Percentage)
	MMR (per 100,000 live births)	Maternal deaths (Number)	MMR (per 100,000 live births)	Maternal deaths (Number)	
Global Total	400	546,000	260	358,000	-34
Developed Regions	16	2,000	14	1,700	-13
Developing Regions	450	540,000	290	355,000	-34
Sub-Sahara Africa (SSA)	870	199,000	640	204,000	-26

(Adapted from WHO 2010:20)

In 2008, there were 358,000 maternal deaths globally translating to MMR of 260 maternal deaths per 100,000 live births (WHO 2010:17). As presented in Table 2.3, developing countries accounted for 99% (355,000) of maternal deaths globally and nearly three fifth (204,000) of the maternal deaths occurred in **Sub-Sahara Africa (SSA)**, the region where Nigeria is located. Another review (Okonofua 2010:9) had reported that Nigeria account for the highest rates of maternal mortality in the developing world, and the country is listed as one of the six countries that account for 50% of the global estimate of maternal death. Between 1999 and 2008, there was a global reduction in maternal death and the MMR

declined by 34%; in sub-Sahara Africa the decrease in MMR was 26% during the same period (1999 to 2008).

Maternal mortality in Nigeria continues to remain a concern, as the country had the second largest number of annual maternal deaths of 50,000 in 2008. This was second only to India, with 63,000 annual maternal deaths during the same period (WHO 2010:17). Likewise, the estimated MMR of 545 maternal deaths per 100,000 live births for Nigeria (NPC 2009:237) falls within the category of countries classified in WHO (2010:17) with 'high MMR'¹. Thus, the need for further understanding of the underlying causes / factors contributing to maternal deaths in Nigeria as a contribution to the body of knowledge required to improve current national response to reduce maternal deaths and meet the targets of MDG5.

Although the causes of maternal death were explored in the next section, the contribution of HIV and AIDS to maternal mortality is discussed below in view of the high HIV prevalence in Nigeria. The national HIV sero prevalence rate among pregnant women attending antenatal clinics in Nigeria was 4.1% in 2010 (FMOH 2010a:16).

Related to HIV-specific maternal mortality, WHO (2010:18-19) estimated that 5.8% of global maternal deaths in 2008 was due to HIV and AIDS. Specifically, 21,000 maternal deaths (18,000 from SSA) were estimated to be due to HIV; translating to HIV-specific MMR of 15 maternal deaths per 100,000 live births globally. FMOH (2007b:11) argued that HIV and AIDS have negative impact on the overall achievement of the MDG 4 and 5 in Nigeria. The argument was based on the estimated 260,000 of the 5.9 million deliveries per annum that were at risk of being complicated by HIV and AIDS (FMOH 2007b:11) with the attendant possibility for maternal mortality in Nigeria.

At sub-national level, the four-year review of MMR in a teaching hospital in Benin-City, South-South Nigeria reported that HIV-related maternal death accounted for about a quarter (24.5%) of the maternal mortality in the hospital (Onakewhor, Olagbuji, Ande, Ezeanochie, Olokori and Okonofua 2011:56) thus bringing to the fore the importance of

¹ High MMR is defined as MMR \geq 300 maternal death per 100,000 live births (WHO 2010:17)

HIV and AIDS in maternal mortality in the country. Like the WHO, UNICEF, UNFPA and World Bank joint estimate report (WHO 2010:4), the sub-national study in Nigeria had classified deaths associated with HIV and AIDS co-infection as indirect obstetric death (Onakewhor et al 2011:55). Available evidence collated in (WHO 2013:94) however indicated that early initiation of **Anti-Retroviral Treatment (ART)** reduced AIDS related mortality, disease progression and vertical HIV transmission and serious adverse events in women.

2.2.3 Causes of maternal death

Maternal deaths arise from a wide range of direct and indirect causes occurring throughout pregnancy, labour, childbirth and in the post-partum period (up to 42 days after birth). Maternal deaths due to indirect causes are related to pre-existing or concurrent diseases that are not complications of pregnancy, but complicate pregnancy or are aggravated by pregnancy (WHO 2005: 62). Globally, 20% of maternal deaths were due to indirect causes (WHO 2005:62). These causes include malaria, anaemia, hepatitis, HIV and AIDS and cardiovascular disease. Direct causes of maternal death arise from complications of pregnancy and childbirth, or are caused by any interventions, omission, incorrect treatment or events that result from these complications, including complications from (unsafe) abortion (WHO 2005:63). According to the world health report 2005 (WHO 2005:63), the most common causes of direct maternal death are severe haemorrhage (25%), infections (15%), eclampsia (13%) and obstructed labour (8%), and complications of unsafe abortion (13%).

In Nigeria, it is difficult to obtain information on the exact cause of maternal death due to the low proportion of institutional deliveries. During the period covered by the 2013 NDHS, only 36% of deliveries took place in health facilities (NPC 2013:22). In addition, Mojekwu and Ibekwe (2012:141) explained that misclassification of maternal death could also arise from illiteracy and cultural norms which prevent communities and households from reporting on deaths in Nigeria.

Available information in Nigeria though broadly consistent with the global causes of maternal death in WHO (2005:63), depicts different leading causes of maternal deaths.

Sub-national studies at tertiary health institutions in Nigeria (Oladapo, Sule-Odu, Olatunji and Daniel 2005:[sa]; Mairiga and Saleh 2009:27) reported that hypertensive disorder of pregnancy was the leading cause of maternal death in Nigeria. Earlier report from the national assessment of essential obstetric care (EOC) in 12 states across Nigeria (FMOH 2003:37) reported haemorrhage as the leading cause of maternal death.

In the analysis of near-miss mortality over a period of three years (2002 – 2004) in a tertiary health facility in Shagamu, South-West Nigeria, Oladapo et al (2005:sa) reported that hypertensive disorder of pregnancy (eclampsia and severe pre-eclampsia) was the major cause of maternal death accounting for 30% of all maternal deaths in the facility. The other causes of maternal deaths reported in the same study (Oladapo et al 2005:sa) included haemorrhage (21%), uterine rupture (14%) and infections (18%). The prospective study of maternal deaths over seven-year period (2001 – 2007) in tertiary health facilities in Bauchi, North-East Nigeria (Mairiga and Saleh 2009:27) reported that pre-eclampsia / eclampsia accounted for 32% of all maternal death, 19% were due to haemorrhage and 10% were due to infections. However, FMOH (2003:37) reported that haemorrhage (33%), prolonged labour (18%), eclampsia (17%), sepsis (11%) and abortion (11%) were the major contributors of maternal mortality in 12 states across Nigeria. Other national reports indicated that 70% of maternal deaths in Nigeria were due to five major complications: – haemorrhage, infection, unsafe abortion, hypertension disease of pregnancy and obstructed labour (Lanre-Abbas 2008:sa).

Aside medical cause of maternal death, poor access to and utilization of quality reproductive healthcare services also contribute to maternal death in Nigeria. A review of the determinants of maternal mortality is presented in the next section as a foundation for exploring the different maternal healthcare services in the country.

2.3 DETERMINANTS OF MATERNAL MORTALITY

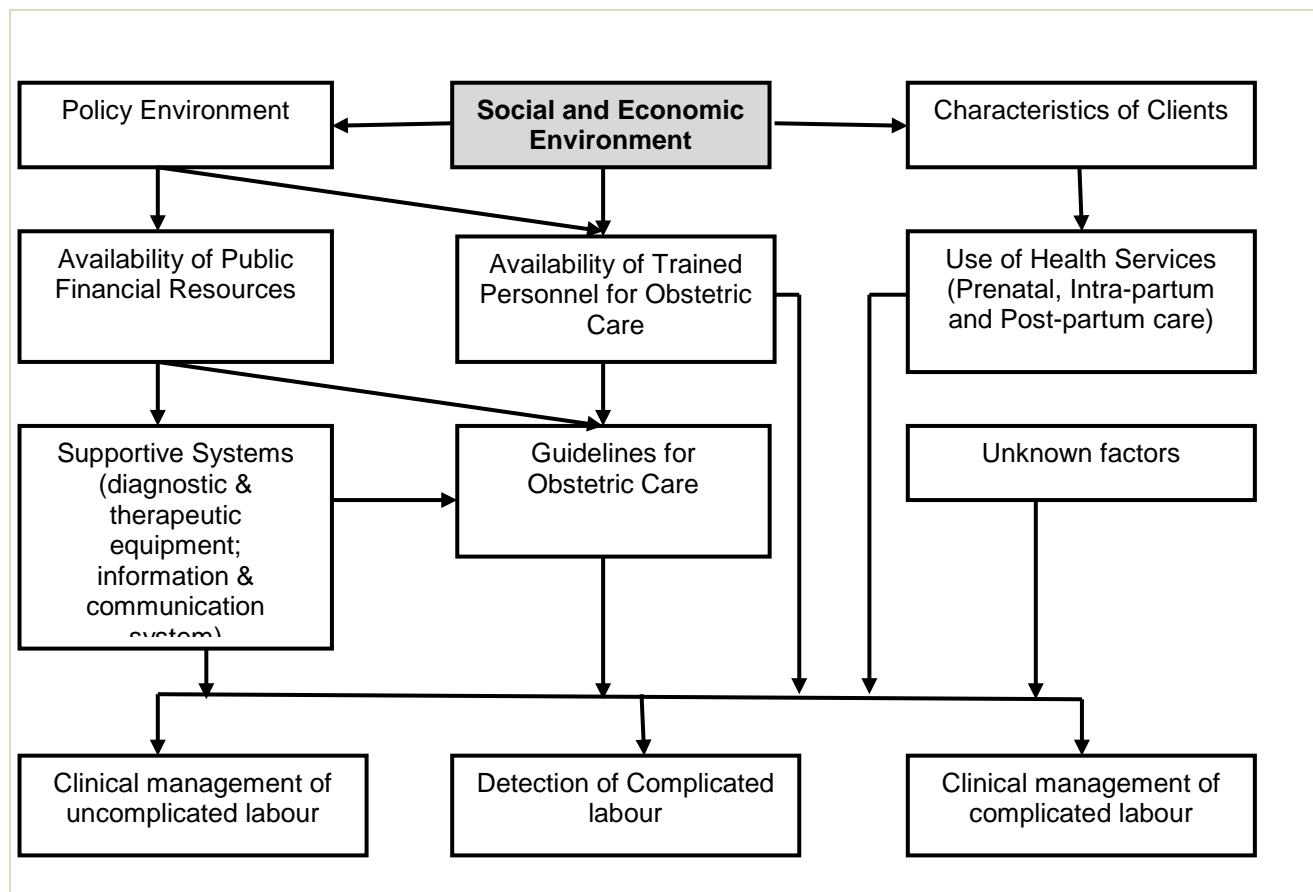
The different causes of maternal mortality discussed earlier in this report operate within the social and economic contexts. The understanding of the interplay of the different SEC of women and the operating environment were contextualized in earlier reviews and studies

(Adeyi and Morrow 1996:125; McCarthy 1997:S17; Maine, Akalin, Ward and Kamara 1997:12). This section explored the different conceptual frameworks underpinning the interplay between the different determinants of maternal mortality as a prelude to the discussion of the different types of maternal healthcare services and the factors that affect their utilization.

2.3.1 Conceptual frameworks for assessing determinants of maternal mortality

The cultural, social, economic, behavioural and biological factors that influence maternal mortality and chronic maternal morbidity were examined in earlier studies (Adeyi and Morrow 1996:120). The studies concluded that the determinants of maternal mortality and morbidity (and thence all efforts to reduce maternal mortality and morbidity) must operate through a sequence of three intermediates outcomes. Thence the efforts must either (i) reduce likelihood that a woman will become pregnant; or (ii) reduce the likelihood that a woman will experience a serious complication of pregnancy or childbirth; or (iii) improve the outcomes for women with complications. Further conceptualization of these three efforts into the distal and proximate determinants of maternal mortality (McCarthy 1997:S17) was discussed in chapter one (section 1.7) as the foundation for this study.

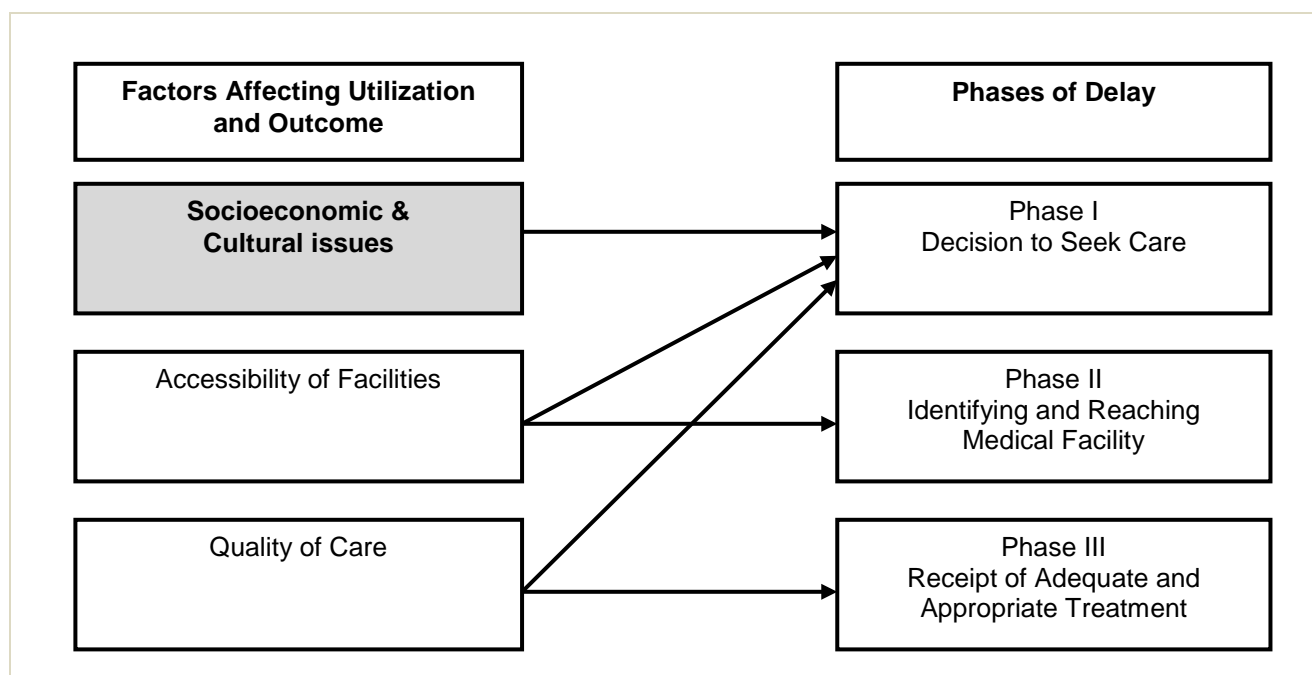
Based on the assumption that improvement in the quality of obstetric care will result in lowered maternal morbidity and mortality (assuming other factors influencing maternal mortality and morbidity remains constant or that they improve), Adeyi and Morrow (1996:124-5) developed a framework for examining the quality of EOC. Three components that influenced quality of obstetric care presented in the framework included (i) clinical management of uncomplicated labour; (ii) detection of complications of labour; and (iii) clinical management of complications of labour. The framework (Adeyi and Morrow 1996:125) indicated that two groups of factors - those that are the responsibility of the state (department of health) and the other related to the characteristics of the clients (pregnant women) affect the three components that influence obstetric care. The framework illustrated in Figure 2.1 indicated that **socioeconomic characteristics** of the clients defined to include education status, economic status, private finance resources and obstetrics history (Adeyi and Morrow 1996:126) ultimately influence what happens at the point of service delivery and consequently the outcome for mothers.



(Adeyi and Morrow 1996:125)

Figure 2.1: Framework for Examining Quality of Essential Obstetric Care

Even where EOC is available and functioning, Maine et al (1997:11) explained that women in need of EOC are faced with other (economic, cultural and geographic) barriers to utilizing the services. These barriers were contextualized into the Three Delay Model that contributes to maternal death. In the model, all the barriers were categorized into three types of delays i.e. (i) delay in making the decision to seek care; (ii) delay in reaching the health facility; and (iii) delay in receiving treatment. According to the model in Maine et al (1997:11), the decision to seek care is the first step that must occur for a woman with complications to access EOC; and this first delay is often influenced by several **socio-economic characteristics** of the woman and cultural factors (that affect decision making among women) in the community. The Three Delay Model is illustrated in Figure 2.2



(Maine et al 1997:12)

Figure 2.2: The Three Delay Model

The review of the frameworks above indicated that SEC of pregnant women / mothers are important factors that influence the determinants of maternal mortality. In this review, it was evident that a complex interplay of SEC on health and reproductive behaviours of pregnant women / mothers; their health status; and access (including decision making) to maternal healthcare services (Adeyi and Morrow 1996:125; McCarthy 1997:S17; Maine et al 1997:12) exist; and influenced maternal health outcome. The coverage, quality and disparities / inequalities in the utilization of maternal healthcare services as well as the influence of the different SEC of women on service utilization are discussed in sections 2.4 and 2.5 of this report.

2.4 MATERNAL HEALTHCARE SERVICES IN NIGERIA

A major strategy for improving maternal and child health in Nigeria (including neonatal care) was the adoption of the safe motherhood initiatives by the **Federal Ministry of Health** (FMOH). According to the review in Bergsjö (2001:3), the four pillars of safe motherhood include (i) Family Planning, (ii) Antenatal Care (ANC), (iii) Clean / Safe Delivery and (iv) Essential Obstetric Care (EOC). These four pillars of safe motherhood informed the

organization of maternal healthcare services in Nigeria into antenatal care, delivery care, post natal care and family planning (contraceptive) services. The review of the four maternal healthcare services is presented below.

2.4.1 Antenatal Care (ANC)

The main objective of ANC is to monitor pregnancy and reduce morbidity risk for mothers and the baby by focusing on early detection of complications and providing prompt treatment; as well as health promotion and services for disease prevention and birth preparedness. Available estimates indicated that about 25% of maternal deaths occurred during pregnancy (WHO 2005:44), the same period when ANC services are offered. Similarly, Lawn, Cousens and Zupan (2005:6) documented the odds of several antenatal factors that contribute to perinatal and neonatal mortality, which further strengthen the importance ANC services play in maternal health. The quality of ANC received by pregnant women was argued as an important determinant of delivery outcome in Nigeria (Oguntunde, Aina, Ibrahim, Umar and Passano 2010:90)

Analysis of the effectiveness of the different components of ANC services in Nigeria is discussed below to provide insight into the quality of care being offered to women. The discussion included a review of the disparity / inequality in ANC service utilization among pregnant women in Nigeria.

2.4.1.1 Information on signs of pregnancy complications

According to NPC (2009:129), 61% of women who received ANC in Nigeria in the five years preceding the 2008 NDHS were provided information on the signs of pregnancy complications. The clinical significance of this information with regards to reducing delays in receiving skilled care and improving relations with health providers was argued in Portela and Santarelli (2003) in Di Mario, Basevi, Gori, and Spettoli (2005:9). In Africa, Nikie´ma, Beninguisse and Haggerty (2009:373) reported that receipt of information during ANC increases likelihood of institutional delivery. However, the lack of evidence on the development and use of birth and emergency preparedness plan (Iliyasu, Abubakar, Galadanci and Aliyu 2010:28-29; WHO 2006:1) in Nigeria as well as the attendant socio-economic problem like accessibility due to transportation problems, availability of skill

medical skill provider and affordability of care remains a challenge. In Northern Nigeria, Iliyasu et al (2010:25) reported that only 31% of male spouse of pregnant women made plan for (facility-based) delivery and 24% made arrangement for transportation for delivery. These challenges have limited the effectiveness of raising awareness on danger signs of pregnancy during ANC for optimal maternal, perinatal and neonatal health outcomes in Nigeria.

2.4.1.2 Routine blood pressure and urine sugar measure

In Nigeria, routine blood pressure check and urine sugar measurement were common at ANC. During the period covered by the 2011 MICS, 62% of pregnant women reported their blood pressure was checked and 56% reported their urine specimen was taken at ANC (NBS 2013:140). Higher proportion of women whose blood pressure was measured (85%) and urine test done (75%) were reported in the 2008 NDHS (NPC 2009:129). Though these practices were said to be effective in screening for **P**regnancy **I**nduced **H**ypertension (PIH) (Bergsjö 2001:6), the **R**andomized **C**linical **T**rial (RCT) by Di Mario et al (2005:10) however reported that at least one-third of pre-eclampsia cases developed in women with normal blood pressure. More so, blood pressure measures are prone to inadequacies and measurement errors. The perinatal and neonatal implications of hypertension in pregnancy have been documented in the fourth perinatal care survey of South Africa where PIH accounted for over 10% of perinatal deaths (Pattinson and Tlebere 2003:7). Therefore, a combination of clinical assessment and maintaining basic standard of practices are required for these components of ANC (blood pressure and urine sugar measure) to be effective as screening tests for pre-eclampsia among vulnerable women is required.

2.4.1.3 Other ANC interventions

The 2008 NDHS (NPC 2009:129) reported that other routine interventions provided during ANC in Nigeria included routine blood test (74%) and administration of iron supplementation (54%). The same survey also reported that 48% of pregnant women in Nigeria received adequate dosage of tetanus toxoid to acquire protection from neonatal tetanus during the five years preceding the survey (NPC 2009:131). In addition to these interventions, the 2003 NDHS (NPC 2004:119) reported the administration of anti-malaria

drug (39%) to women in ANC in Nigeria. The effectiveness of these interventions based on available evidence is discussed below.

Bergsjö (2001:6) documents the effect of routine blood test to measure blood count (and detect anaemia), screen for infections, detect malaria parasite and determine blood group. The same study reported on the effectiveness of malaria chemoprophylaxis to reduce anaemia in pregnancy (especially in the tropics like Nigeria), as well as the prevention of low blood count through iron supplementation. The determination of blood group in pregnancy is also effective in the identification of blood donors where blood transfusion is required during delivery. Aside the importance of these interventions in ANC on maternal health, WHO (2005:44-5) noted the potential increase in still birth, spontaneous abortion, low birth weight and neonatal death due to anaemia and malaria in pregnancy. The RCT by Di Mario et al (2005:9) though acknowledged the positive effect of iron supplementation during pregnancy in preventing low blood count; the report concluded that there was no evidence of any effect, beneficial or harmful, of routine iron supplementation for maternal and neonatal outcome.

Tetanus immunization is effective in the prevention of maternal and neonatal tetanus (Blencowe, Lawn, Vandelaer, Roper, and Cousens 2010: i106; Bergsjö 2001:6). Similarly, the detection and effective treatment of syphilis in pregnancy have reduced foetal loss, maternal and infant morbidity (Bergsjö 2001:6). The RCT by Di Mario et al (2005:14) however reported that universal screening for syphilis was more cost effective than screening high risk groups contrary to the current practice of screening high risk women in Nigeria.

Other interventions offered in ANC in Nigeria not reported in the 2008 NDHS that have significant impact on maternal, perinatal and neonatal outcome include **Ultra-Sound Scan (USS)**, lifestyle education, and comprehensive **Prevention of Mother-To-Child Transmission of HIV (PMTCT)**. Routine USS in early pregnancy is effective in assessing gestational age, early detection of multiple pregnancies and detection of unsuspected foetal malformation (when termination of pregnancy is possible). However, routine USS in

low-risk women was reported not to be beneficial to both the mother and the baby (Di Mario et al 2005:13).

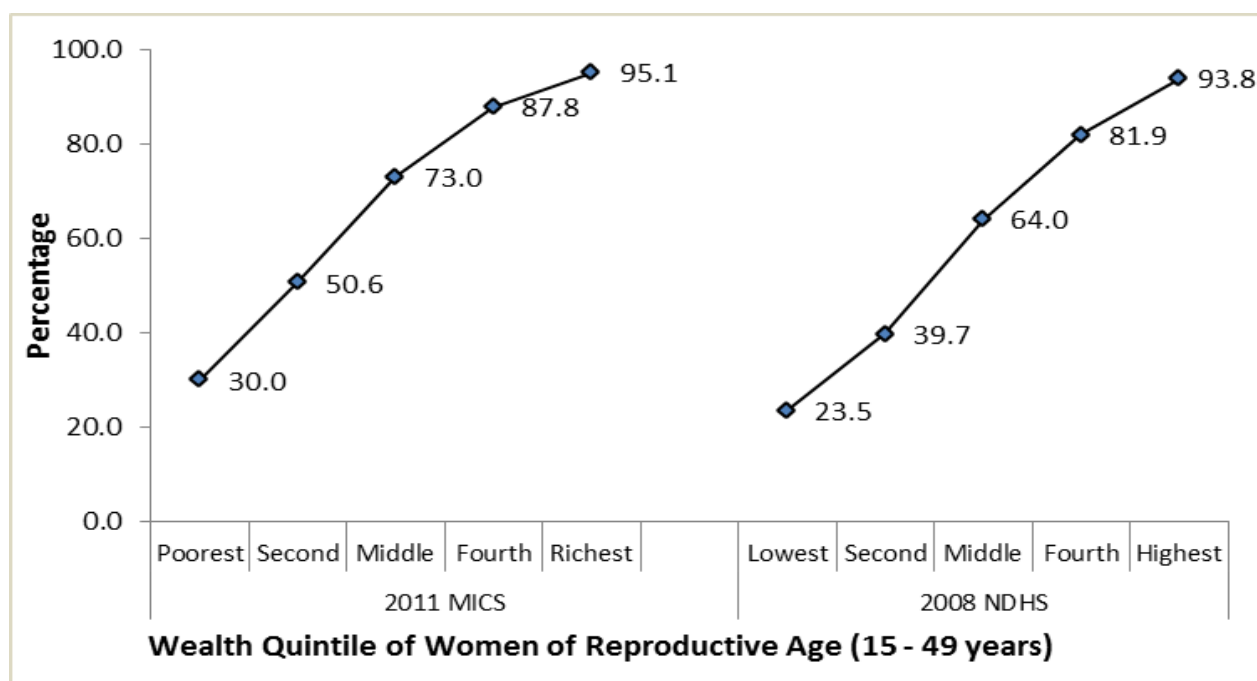
Health education focusing on adequate nutrition, hygiene promotion and other reproductive health education are common features in ANC in Nigeria. These interventions were argued to be effective in places (like Nigeria) where living standard is poor, the people are ill fed and ignorant, and health is undermined by high prevalent endemic diseases (Bhasker-Rao, Harrinson and Bergstrom [sa:23]) like malaria which is prevalent in Nigeria.

In 2010, it was estimated in Nigeria (FMOH 2010a:49-50) that there were 1.6 million female of reproductive age (15 – 49 years) living with HIV and AIDS, and about 155,000 (projected to 158,000 in 2012) new childhood HIV infection. FMOH (2007b:8) reported that 5% of under-5 mortality in Nigeria during the year 2004 was due to HIV and AIDS (mainly through mother to child transmission). In line with the National Guidelines for PMTCT in Nigeria (FMOH 2010b:7), pregnant women registered for ANC are to receive HIV testing and counselling during the first ANC visit as an entry to PMTCT services. This practice was well documented in the assessment of early infant diagnosis and PMTCT services in six facilities in South-South region of Nigeria (Anoje, Aiyenigba, Suzuki, Apoigbe, Odo, Odafe, Adedokun, Torpey and Chabikuli 2012:sa) As such ANC services provide opportunity to improve both maternal and neonatal outcome related to HIV and AIDS where PMTCT services are initiated on time.

Another limitation of current practice at ANC in Nigeria is related to obstetric record keeping. Currently, record keeping at ANC clinic in Nigeria is maintained in a facility-based health record. There is no evidence of any system whereby pregnant women keep their own obstetric note / record; though this practice was argued to improve clinical safety (Di Mario et al 2005:8). As such the efficiency of care received by women in the case of internal migration or in emergency situation remains a concern in Nigeria.

2.4.1.4 Disparity in access and utilization of ANC in Nigeria

In the five years preceding the 2013 NDHS, 61% of all pregnant women received ANC from trained medical professional² (NPC 2013:22). A lower proportion of women (25%) were reported to utilize ANC services in a sub-national five year study in Northern Nigeria (Doctor, Bairagi, Findley, Helleringer and Dahiru 2011:15). Using data from NBS (2013:137) and NPC (2009:126), the pattern of utilization of ANC services from skilled providers among women in different wealth quintile presented in Figure 2.3 indicated a massive deprivation pattern of utilization (WHO 2005:29).



(Data sources: NBS 2013:137; NPC 2009:126)

Figure 2.3: Pattern of Utilization of ANC Service provided by skilled provider in Nigeria

Higher proportion of women in the upper wealth quintile accessed ANC care provided by skilled provider compared to those in lower wealth quintiles (figure 2.3). Differential in utilization of ANC services from skilled medical provider along the level of education and in favour of women with higher level of education were also reported in the two national studies.

² Skilled provider of ANC include doctors, nurses, midwives and auxiliary nurses / midwives (NPC 2009:126)

In addition, less than half of the women who were aged less than 20 years (43%), whose birth order during the five years preceding the 2008 NDHS was six (6) or more (47%), and who were resident in rural area (46%) utilized ANC service (see Table 2.4) like other marginalized groups (WHO 2005:42).

Table 2.4: Proportion of Women Receiving ANC from Skilled Providers by Different Socio-Economic Characteristics in Nigeria

Socio-Economic Characteristics		Percentage
Mothers Age at Birth	Less than 20 years	43.0
	20 – 34 years	61.3
	35 – 49 years	55.2
Birth Order	1	64.2
	2 – 3	62.1
	4 – 5	59.1
	6 and above	47.0
Residence	Urban	83.8
	Rural	46.4

(Source: NPC 2009:126)

Among women who attended ANC during the 5 years covered by the 2008 NDHS, nurse / midwife (30%) and doctors (23%) were identified as the lead providers of ANC services (NPC 2009: 126) in Nigeria. In the period covered by the NBS (2013:137) however, 34% and 31% of pregnant women sought ANC services from doctors and nurse / midwife respectively. This practice of receiving ANC from skilled provider was documented in the RCT by Di Mario et al (2005:8) to have the potential for positive outcomes for low-risk women (with un-complicated pregnancies).

The number of ANC visits and timing of the first visits by pregnant women is of equal importance in assessing quality of care. Four goal oriented ANC visits was recommended by the WHO (Bergsjö 2001:7; Di Mario et al 2005:8) for women at lowest risk (of pregnancy – related complications), with the first visit as early as possible (preferably before the 12th week of pregnancy). Findings from Nigeria (NPC 2009:128) however

showed that the proportion of women who obtained the recommended minimum number of ANC visits was low, and first visit often occurred late in pregnancy. Specifically, less than half of pregnant women in Nigeria (45%) obtained the four minimum ANC visits, and the median month at first ANC visit was 5 month.

Overall, ANC remains one of the major components of maternal healthcare service in Nigeria. The service when delivered with quality has the potential for reducing the risk of maternal death among pregnant women.

2.4.2 Delivery care

According to WHO (2005:62), between 11% and 17% of maternal deaths occur during childbirth, thus justifying the importance of safe delivery care. It was established (Titaley, Dibley and Roberts 2012:409; WHO 2005:65) that the intervention of skilled attendants at birth significantly contributes to the reduction of maternal and neonatal morbidity and mortality. There is global consensus that skilled attendance is a strategy by which a woman is provided with adequate care during labour, delivery and early postpartum period (Adegoke and van den Broek 2009:33-34). The strategy placed emphasis on both skilled health personnel and the enabling environment (which includes adequate supplies, equipment and infrastructure; as well as efficient and effective system of communication and referral). The lifetime risk of maternal deaths for women in countries with low coverage of births attended by skilled personnel was argued in Carlough and McCall (2005:202) to be higher than in settings with high coverage of skilled attendants at delivery - a further justification for the importance of skilled birth attendants in maternal health outcome.

As a prelude to accessing skilled attendance at delivery in Nigeria, it is worrisome that only 36% of women in Nigeria delivered in health facilities during the period covered by the 2013 NDHS (NPC 2013:22). Even among women who delivered in health facilities, only 38% were attended by skilled personnel (NPC 2013:22). The 2011 MICS among women of reproductive age group however reported that 49% of births during the two year covered by the survey were attended by skilled personnel (NBS 2013:143). The 2008 NDHS had reported that 35% of deliveries took place in health facilities compared to the 62% of home deliveries (NPC 2009:132). All the reported rates in Nigeria (NBS 2013:143; NPC

2009:132; NPC 2013:22) were however below the global estimate of 53% of births attended by skilled attendants in developing countries (Carlough and McCall 2005:201). Specifically, nurse / midwives (25%), doctors (9%) and auxiliary nurses / midwives (5%) were the major skilled attendants in Nigeria (NPC 2009:132).

2.4.2.1 Disparity in access and utilization of skilled birth attendants in Nigeria

In Nigeria, women whose births were attended by skilled personnel vary across SEC, and were further explored through findings in both the 2011 MICS (NBS 2013:145) and the 2008 NDHS (NPC 2009:134). The MICS reported that women in urban areas (74%) were twice as likely to have their deliveries attended by skilled personnel compared to those in rural area (37%). The same study reported that women's education was important, with less than one out of every five woman with no education (15%) reported the receipt of skilled attendants at birth compared to about half of those with primary education (51%) and 80% of mothers with secondary or post-secondary education. Across wealth quintiles, NBS (2013:145) reported that 11% of women in the lowest wealth quintile compared to 90% of those in the highest quintile had skill attendants at birth. The 2008 NDHS (NPC 2009:134) established similar pattern of utilization of skilled delivery care among women of different SEC as presented in Table 2.5 and Figure 2.4.

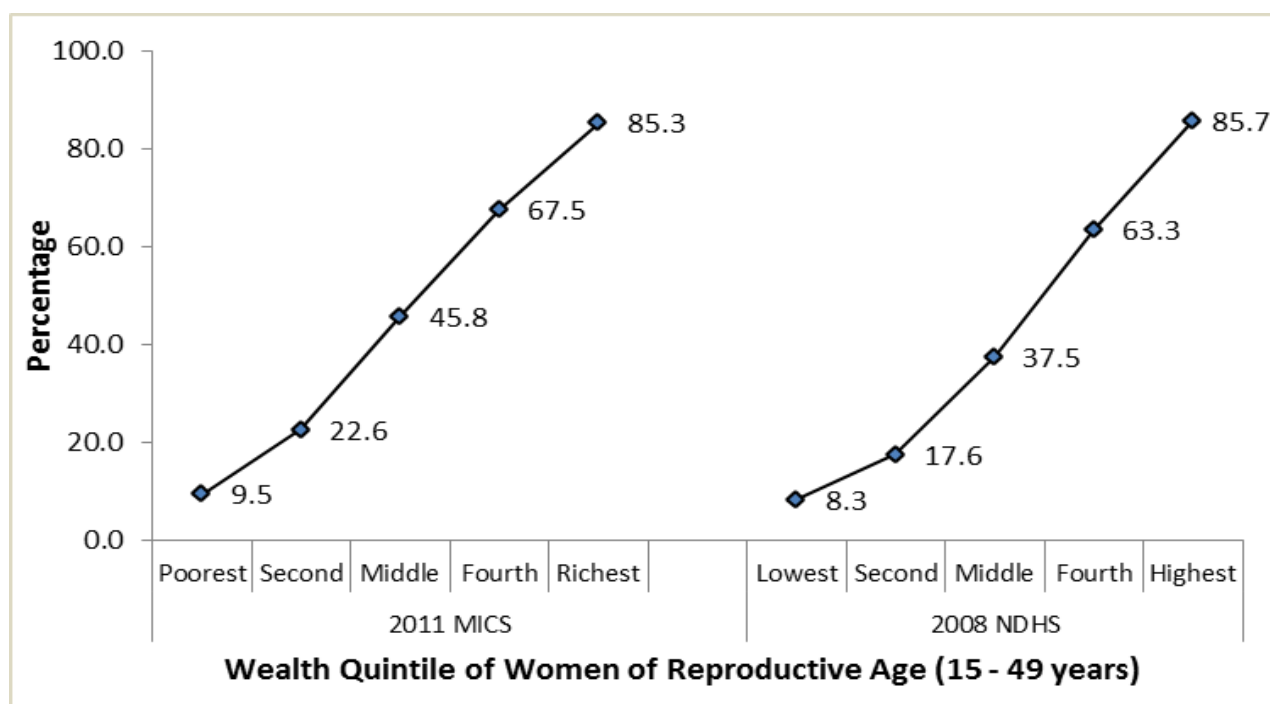
Other attendants at birth in Nigeria included **Traditional Birth Attendant (TBA)**, relatives / friends and sometimes there is no one at delivery. The 2008 NDHS reported that 22% of births were attended by TBA, 19% by relatives / friends and 19% were attended by no one (NPC 2009:134). Likewise, NBS (2013:145) reported similar findings with 15% of births attended by TBA, 22% by relatives and 8% by no attendant.

The place of TBA in offering emotional support to pregnant women was highlighted in Carlough and McCall (2005:201). Until recently, TBAs were provided trainings to identify obstetric complications and improve maternal and new born care in Nigeria. However, the effectiveness of such strategy has been queried in WHO (2005:70) because obstetric complications are unpredictable and TBA often do not have the technical knowledge and skills required to deliver first level care (WHO 2005:69) to mothers and their newborn.

Table 2.5: Proportion of Women Delivered by Skilled Personnel at Birth by Different Socio-Economic Characteristics in Nigeria

Socio-Economic Characteristics		Percentage
Mother's Age at Birth	Less than 20 years	24.6
	20 – 34 years	42.7
	35 – 49 years	35.6
Maternal Education	No Education	11.5
	Primary Education	44.2
	Secondary Education	73.4
	More than Secondary Education	93.9
Birth Order	1	49.1
	2 – 3	44.4
	4 – 5	37.5
	6 and above	24.8
Residence	Urban	65.4
	Rural	27.2

(Source: NPC 2009:134)



(Data sources: NBS 2013:148; NPC 2009:134)

Figure 2.4: Pattern of Utilization of Skilled Birth Attendants in Nigeria

Guided by the definition of skilled attendance (Adegoke and van den Broek 2009:33-34), the importance of the delivery environment in Nigeria was also explored in this report. According to FMOH (2003:25), tertiary health facilities in Nigeria have adequate material resources (equipment, supplies and drugs) to offer adequate maternal and newborn care; while the availability of such material resources varied to a lower extent at the secondary and primary care facilities where majority of the population access care. This situation further worsens access of pregnant women to skilled birth attendants in the country. Therefore, a deliberate action to complement the available material resources with skilled personnel at all level of health care is necessary especially at the primary and secondary level of care in Nigeria.

2.4.3 Post Natal Care

Postnatal period is the time from immediately after birth up to 40 days. This is the same period when 50% to 70% of maternal deaths occur (WHO 2005:62). As such, receiving PNC is both beneficial to the mother and the baby. The postnatal period is also important as life-threatening conditions that result in maternal death in Nigeria (Oladapo et al

2005:sa; Mairiga and Saleh 2009:27) can be identified and medical care / referrals initiated.

The PNC provides opportunity for other services and follow-up care for both the mother and the child. In Nigeria, information and counselling for child spacing (family planning), breastfeeding and care of the new born (FMOH 2005:98) are provided at PNC clinic. In the context of PMTCT services (FMOH 2010b:33-4), the PNC clinic provide opportunity to review support for the infant, discuss couple / partner HIV testing and counselling, contraception, provision of condom to protect partner from HIV infection as well as adherence counselling for women who need to continue ART.

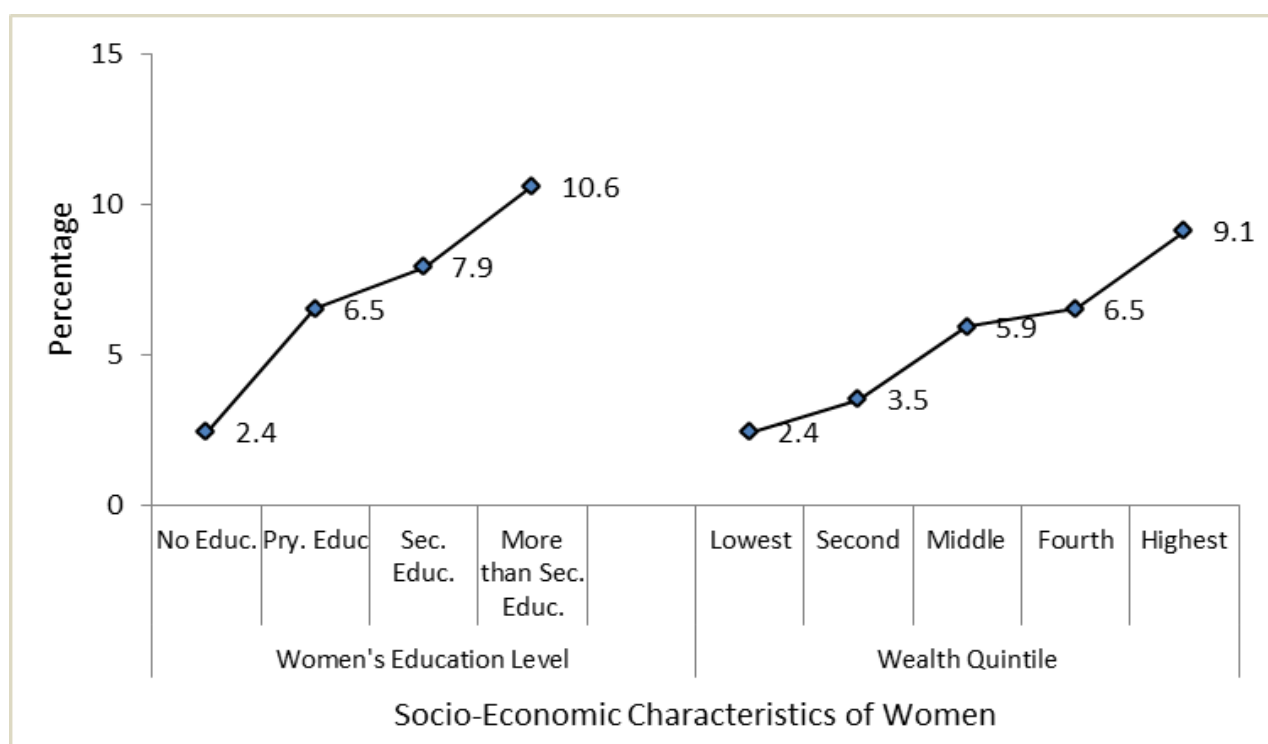
In Nigeria, utilization of PNC is however low. NPC (2009:136) reported that about half (56%) of women who delivered during the five year preceding the 2008 NDHS did not receive PNC. A lower proportion was reported in the 2007 **National HIV/AIDS and Reproductive Health Survey (NARHS)**, where only 42% of women who gave birth within the last five years preceding the survey received PNC (FHOH 2008:117). Among women who received PNC however, 38% received post natal check-up within two days of delivery, and 3% of the women had a check-up 3 to 41 days after delivery (NPC 2009:135). As an indication of the quality of PNC service provided in Nigeria, information on the provider of PNC was also explored in this review. The 2008 NDHS reported that 32% of women received PNC check-up from a doctor, nurse or midwife (skilled personnel) and 7% from TBA. While skilled providers have the ability to identify problem and appropriately treat or refer women for care, unskilled personnel like TBA providing PNC care compromises outcome for mothers (WHO 2005:69).

2.4.3.1 Disparity in access and utilization of PNC in Nigeria

According to the NARHS (FMOH 2008:117), the proportion of pregnant women that received PNC was higher in urban (60%) than rural locations (33%), and increased with education level from 19% for women who never attended school and 22% for those who attended koranic school only to 75% among women with higher education). The proportion that received PNC also increased generally with increasing age, although women in the 40-49 age groups had lower value than those in 25-29 age groups.

Similarly, disparities were reported in the 2008 NDHS (NPC 2009:135). Specifically, the 2008 NDHS reported that mothers aged 20 – 34 years and mothers who gave birth to their first child were most likely to receive postnatal care within the first four hours after giving birth (20% and 33% respectively). Women in urban areas were twice as likely as those in rural areas to receive postnatal check-up in the first four hours after delivery (44% compared to 22%). Almost six in every ten women (59%) in urban areas obtained postnatal care within the first two days after delivery, compared with the 30% of women in rural areas.

Similar to the utilization pattern for both ANC (Figure 2.3) and delivery care (Figure 2.4), more women with better education and those in higher wealth quintiles received post natal check-up within the first two days after delivery (Figure 2.5).



(Data source: NPC 2009:136)

Figure 2.5: Pattern of Utilization of Post Natal Care within 2 Days of Birth in Nigeria³

³ The 2011 MICS did not present data on PNC services.

2.4.4 Family Planning (Contraceptive) Services

In the three years preceding the 2013 NDHS, the **Total Fertility Rate (TFR)** in Nigeria was estimated to be 5.5 births per woman (NPC 2013:11). Aside the high TFR, high level of unwanted pregnancy - a direct outcome of low level of use of effective contraceptives was argued in Bankole, Sedgh, Okonofua, Imarhiagbe, Hussain and Wulf (2009:20) to result in high level of unsafe abortion, one of the major causes of maternal deaths in Nigeria. The study estimated that 760,000 induced abortions occurred annually among Nigerian women of reproductive age group (15 – 49 years). The estimate was based on the findings of the 2006 study where one in ten Nigerian women (aged 15 – 49 years) was reported to have procured induced abortion (Bankole et al 2009:9). As such family planning services continues to be of relevance in the country.

As a demonstration of the national importance placed on family planning, Nigeria established the National Family Planning / Reproductive Health Policy Guidelines and Standard of Practice in 2004 to guide the national effort at improving the quality of reproductive health and family planning as well as establish indicators to measure progress towards set national objectives on family planning (Bankole et al 2009:14-5). Several advantages have been attributed to family planning which include reduction of poverty, and maternal and child mortality due to reduction in fertility; empowerment of women by lightening the burden of child bearing; and enhancement of environmental sustainability by stabilizing the population of the planet (Bankole et al 2009:7; Cleland, Bernstein, Ezeh, Faundes, Glasier and Innis 2006:1810).

Related to maternal health, it was noted in Cleland et al (2006:1813) that about 90% of global abortion-related and 20% of obstetric-related mortality and morbidity could have been averted by the use of effective contraception by women wishing to postpone or cease further child bearing. In the year 2000, the same study estimated that 150,000 maternal deaths (representing 32% of all such deaths) could have been prevented.

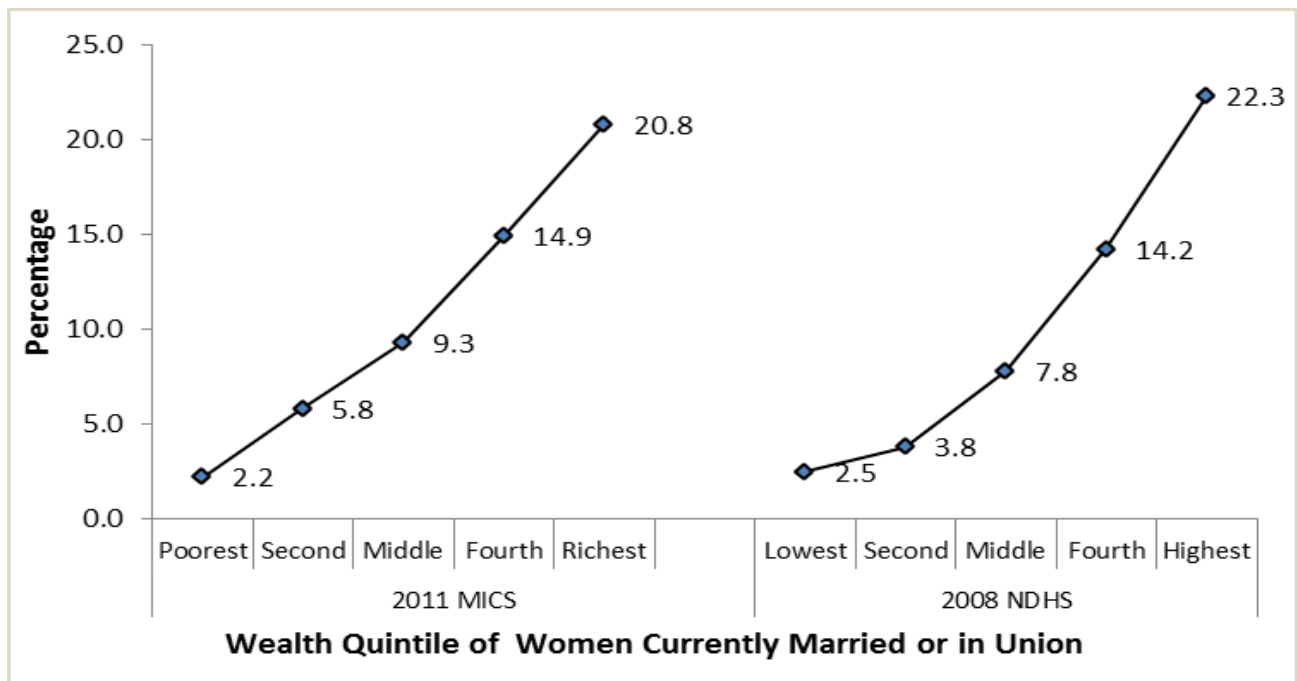
The percentage of sexually active females (married and unmarried) currently using any method of family planning is low in Nigeria. Available national evidence (FMOH 2008:106; NPC 2009:69) indicated that less than one in five sexually active Nigerian women used

any modern contraceptive method at the time of the two surveys. While the 2008 NDHS (NPC 2009:69) reported a contraceptive prevalence rate of 15%, the NARHS (FMOH 2008:132) reported a 13% contraceptive prevalence rate among all sexually active women in Nigeria. Among women currently married or in union, NBS (2013:127) reported that 18% currently use contraceptives. The male condom was the most common method of contraception in use in Nigeria. Going by the data from the 2008 NDHS, it was surprising to note that there was a big disconnect between the widespread knowledge of contraceptive methods and the use of any contraceptive method. Although 72% of Nigerian women knew any contraceptive method (NPC 2009:63), only 15% reported they used any contraceptive method (NPC 2009:69).

2.4.4.1 Disparity in access and utilization of family planning services in Nigeria

Marital status is one of the factors that influenced utilization of family planning services in Nigeria. Sexually active unmarried women recorded higher usage of modern contraceptive methods compared to their married counterparts - 31% versus 9% in NARHS; and 67% versus 24% in the 2008 NDHS (FMOH 2008:132; NPC 2009:66). In addition to the observation that unmarried women were more likely to delay pregnancy when compared to their married counterparts, NPC (2009:64) reported that a higher proportion of sexually active unmarried females (95%) when compared to their married counterparts (68%) had knowledge of contraceptive methods. In addition, 55% of sexually active unmarried female respondents reported the ever usage of male condom (31%) compared to 9% of female married respondents (NPC 2009:66).

The use of contraceptive methods also varied across location of residence, level of education and wealth quintiles in Nigeria. Among all sexually active women (married and unmarried), FMOH (2008:134) reported that women in urban areas (15%) compared to 7% in rural areas; and women with higher education (28%) compared to 2% of women with no education used modern contraceptive method during the survey. The pattern of utilization of contraceptive methods across education level showed more utilization among educated women (NPC 2009:71). Likewise, utilization of modern contraceptive methods among married women (or those in union) in higher wealth quintile was higher than those in lower wealth quintiles (figure 2.6).



(Data sources: NBS 2013:130; NPC 2009:71)

Figure 2.6: Pattern of Utilization of Modern Contraceptive Method (Family Planning) Among Married Women in Nigeria

While the discussion above indicated a clear pattern with regards to utilization of family planning services across education, wealth and location and marital status, both NARHS and the 2008 NDHS however did not establish any pattern across age group in the utilization of family planning services in Nigeria. Among sexually active unmarried women, the use of modern contraceptive methods was highest among women aged 25 years and older (36%) and 25% among those aged 20 – 24 years as well as those between 15 – 19 years (FMOH 2008:132). The same survey reported that married women aged 25 years and above had higher proportion of contraceptive use compared to younger women. In the 2008 NDHS (NPC 2009:70), sexually active unmarried women aged 20 – 24 years (68%), 25 – 29 years (65%) and 30 – 34 years (61%), and 15 – 19 years (56%) recorded the highest usage of contraceptives. The same survey (NPC 2009:70) reported that married women aged 30 – 39 years had higher proportion of contraceptive usage compared to other age groups.

2.5 FACTORS INFLUENCING UTILIZATION OF MATERNAL HEALTH SERVICES

The behavioural model of health services utilization (Andersen and Newman 2005:12) was introduced in chapter 1 as a framework to provide more insight into how the different SEC of women contribute to their exclusion from maternal health benefit in this study (Figure 1.3). In this study, the three categories of individual determinants presented in the behavioural model (Andersen and Newman 2005:12) were used to further explore SEC of women as they influence the determinants of maternal mortality (Adeyi and Morrow 1996:125; McCarthy 1997:S17; Maine et al 1997:12). The discussion below is complementary to earlier discussion on the disparity in the utilization of maternal healthcare services with additional focus on how SEC of women affect utilization of the different maternal healthcare services.

2.5.1 Predisposing characteristics

These are factors that describe the propensity of individuals to use healthcare services. These characteristics exist in the individual prior to the onset of illness; and in the case of this study prior to the onset of pregnancy or child birth. These characteristics were categorised in Andersen and Newman (2005:14) into three i.e. demographic, social structure and health belief.

2.5.1.1 Demographic characteristics

Demographic characteristics identified in the behavioural model which are expected to define the likelihood that women (in the context of this study) will need healthcare services included age, sex, marital status, and past illnesses. Past illness in the context of this study is contextualized as parity and birth order for women of reproductive age group. While acknowledging the importance of these demographic factors, available evidence in Nigeria from the 2008 NDHS, NARHS and MICS (discussed earlier in this report) presented a mixed pattern of utilization of different maternal healthcare services across the different demographic characteristics of women. Further elaboration on maternal age, marital status and birth order / parity using additional evidence is discussed below to provide additional insight in this review.

2.5.1.1.1 Maternal age

Women of different ages have different experience and influence on their environment; as such their health seeking behaviours also differ. In a sub-national study in Emevor, Delta State Nigeria, Awusi, Anyanwu and Okeleke (2009:22) reported that age was significantly associated ($p < 0.05$) with the utilization of ANC services; and a higher proportion of younger women aged 30 years and younger (88%) compared to 13% of those older than 30 years utilized ANC services. Similar finding was reported in Ethiopia where 28% of women aged less than 35 years compared to 21% of those aged over 35 years used ANC care (Mekonnen and Mekonnen 2003:375). In Northern Nigeria, Doctor and Dahiru (2010:42) had reported statistically significant relationship ($p < 0.001$) between age and delivery by **Non-Skilled Birth Attendant (NSBA)**. These findings may be based on the assumption that younger women are better exposed to information / media on modern healthcare, and this exposure coupled with their limited past pregnancy experience might contribute to their interest to seek modern healthcare services. Older women on the other hand might have developed perception on the performance and efficiency of modern healthcare services based on their past pregnancy and delivery experience, and may be more comfortable with alternative delivery options (like traditional birth attendants) as such, might be less likely to seek modern healthcare services.

In Kenya however, van Eijk, Bles, Odhiambo, Ayisi, Blokland, Rosen, Adazu, Slutsker and Lindblade (2006:sa) reported that adolescent women (aged less than 18 years) and older women (aged more than 34 years) were less likely to attend ANC when compared to those aged between 18 years and less than 34 years. Limited access to maternal healthcare among adolescent was argued as a manifestation of the socio-economic inequality that affects adolescents (WHO 2011:12) due to limited access to funds to pay for healthcare, requirement of parental consent to seek healthcare, societal exclusion due to early marriage or sexual coercion; or discrimination by judgmental health workers at the point of seeking care. Another study (Oguntunde et al 2010:91) in Northern Nigeria however reported that age was not statistically associated with utilization of ANC.

The analysis in this sub-section thus indicates a mix trend with regards to the influence of age on the utilization of maternal healthcare services.

2.5.1.1.2 Marital status

Being married confers some level of family support and societal respect upon women in Africa. A married woman is expected to have more access to financial support from her husband and extended family and thence has better access to healthcare. This assertion was made in the study on women's health in Cameroun (Defo 1997:1031) where marriage was argued to confer social support and security on women and associated with better health. In Ethiopia, Mekonnen and Mekonnen (2003:376) reported that married women were 40% more likely to receive ANC from a health professional than unmarried women. The same pattern was also established with regards to the receipt of professional assistance at delivery, where 90% of married women compared to 9% of unmarried women reported they had skilled attendants at birth (Mekonnen and Mekonnen 2003:379). In addition to financial constraints, unmarried women in Africa are also subjected to some level of stigma associated with pregnancy outside of marriage (Defo 1997:1031), especially among younger unmarried women. The situation with regards to the societal stigma worsens with increasing parity among unmarried women. As such marital status continues to influence reproductive health behaviours of women and utilization of maternal healthcare services in Africa.

2.5.1.1.3 Birth order

Past experience relating to pregnancy, child birth and post natal care remains one of the factors that influence the decision of women to utilize services. Evidence from Nigeria (Awusi et al 2009:23) and Ethiopia (Mekonnen and Mekonnen 2003:375-6) indicated that women with limited or no past experience relating to pregnancy and child birth were more likely to seek ANC and professional assistance at delivery.

In Delta State Nigeria, Awusi et al (2009:23) reported that 72% of women of parity of 1 to 4 children (limited experience) compared to 19% of those with parity more than 4 children reported they utilized ANC services. According to Mekonnen and Mekonnen (2003:375-6), Ethiopian women with at most four children ever born (limited experience) tended to use ANC services more than those with higher parity. The same study in Ethiopia also noted that women who were pregnant with their first child (limited experience) were more likely to use ANC (29%) than women who had more than one child aged less than five years (24%) during the survey. The pattern of utilization of professionally-assisted deliveries among

mothers was also inversely related to woman's parity in Ethiopia (Mekonnen and Mekonnen 2003:378). Women with more than one child were 50% less likely to receive professional delivery care compared to single – parity women.

2.5.1.2 Social structures

Social structures encompass the status of the individual in the community as measured by characteristics such as education, ethnicity, occupation and family size. The review of literature in this report indicated that the education level of women is an important factor in the utilization of different maternal healthcare services (section 2.4). The review in section 2.4 is consistent with the argument in Andersen and Newman (2005:15) that the social structure characteristics of individuals suggest their lifestyle, indicate their physical and social environment, as well as their behaviour pattern towards utilization of healthcare services.

2.5.1.2.1 Maternal education

In a study in Kaduna, Northern Nigeria, Butawa, Tukur, Idris, Adiri and Taylor (2010:72) reported that the influence of maternal education on the knowledge of maternal health was statistically significant relationship ($p = 0.001$). The same study (Butawa et al 2010:75) further argued that the number of schooling years completed by women influenced their perception and utilization of health services. Similar results regarding the influence of education on the utilization of skilled attendant at birth were established in Wirth, Balk, Delamonica, Storeygard, Sacks and Minujin (2006:523) in the examination of data from six countries (Cambodia, Dominican Republic, Ethiopia, Ghana and Kenya and Tajikistan) to set the stage for equity based monitoring of health related MDG. In Kenya, the study demonstrated that there was a statistically significant association ($p < 0.01$) between maternal education and utilization of skilled birth attendant among both the poor and the non-poor sub-groups of the population. The linear relation between education and use of maternal healthcare services was also established in Ethiopia. According to Mekonnen and Mekonnen (2003:376), 72% of Ethiopian women with at least secondary education compared to 45% and 21% of women with primary or no education respectively utilized ANC services. Regarding access to skill birth attendant at delivery, Mekonnen and Mekonnen (2003:378) reported that the odds ratio for women with primary and at least

secondary education compared to women with no education was about three and a half times and eight times respectively. Adanu (2010:155) reported that women with highest education status in Ghana had significant chance ($p < 0.001$) of being attended to by doctors at ANC. Similar effect were reported for the use of contraceptive services in Nigeria (Avidime, Aku-Akai, Mohammed, Adaji, Shittu and Ejembi 2010:69).

A mixed pattern of utilization of contraceptive services was however documented in the review of data from six countries in Wirth et al (2006:524). While education gradient along utilization of contraceptive services was established in Tajikistan - 16% for women with no education compared to 40% for women with tertiary education; utilization of modern form of contraceptives declined as education increased among women in Dominican Republic (Wirth et al 2006:524). In Doctor and Dahiru (2010:42), formal schooling was not significantly associated ($p = 0.106$) with the receipt of NSBA in northern Nigeria.

Beside improved awareness of the importance and location of maternal healthcare services that comes with education, educated women also have better employment opportunities (another social structure for service utilization) and thus have better influence on decisions that affect their health compared to those that are not educated.

2.5.1.2.2 Ethnicity

The interplay between ethnicity and utilization of maternal healthcare services was elaborated to operate via the pathway of the extent to which an individual is attached to traditional beliefs which in turn influences their behaviour and practices (Defo 1997:1030). In Cameroon, Defo (1997:1030) elaborated that traditional ethnic groups were more likely to observe practices such as early marriage, post-partum abstinence taboos and longer breast feeding period as part of their reproductive health behaviour. The result from Wirth et al (2006:523) indicated that ethnicity had significant effect on the use of skilled birth attendants in Ghana where 63% of the dominant ethnic group compared to 34% among the none-dominant ethnic group accessed the services ($p < 0.00005$).

2.5.1.3 Health belief

Health belief concerns attitudes, values and knowledge that people have about health (conditions) and healthcare services that might influence their perception of need and

utilization of services (Andersen and Newman 2005:14). Although health belief is not a direct reason for the utilization of health services, in Andersen and Newman (2005:15), it was noted that health belief does result in the inclination towards usage of services. In the utilization of maternal healthcare services like ANC, delivery care and PNC in Nigeria for example, the analysis in section 2.4 showed that women in their first pregnancy (as reported in the 2008 NDHS) were more likely to seek care due in part to the perception that first pregnancy is precious compared to other pregnancies in Nigeria. Similar findings were reported among women in Ethiopia (Mekonnen and Mekonnen 2003:375-6).

Regarding the use of modern contraception, FMOH (2008:127) documented several perceptions that influenced utilization among women. These perceptions included the view that family planning makes young people to be 'loose' (sexual promiscuous) - 33%, become infertile (22%) and act against religion (32%). As such inclination to access and use modern forms of contraception among women in Nigeria are influenced by their analysis of the importance of pregnancy prevention against the perceived benefit and harm of the contraceptive service to be sought.

2.5.2 Enabling characteristics

These characteristics refer to the resources and 'means' individuals have to be able to make use of health services (Andersen and Newman 2005:15). These include both family resources of the individual as well as the attributes of the community where the individual resides.

2.5.2.1 Family resources

Family resources of the individual include (household) income, health insurance coverage, or other source of third-party payment, availability of regular source of health care, the nature of the regular source of care and the accessibility of the source (Andersen and Newman 2005:15-6).

2.5.2.1.1 Household income

Earlier studies (Lynch, Smith, Kaplan and House 2000:1201; Eurostat 2000:9) and the review of utilization of maternal healthcare services in Nigeria (Section 2.4 of this report)

indicated that household income influenced health service utilization and thence outcomes. In the examination of health difference among individuals, Lynch et al (2000:1201) asserted that individual income was strongly related to individual differences in health. Similarly, the review in Eurostat (2000:9) noted that higher household income was associated with better health condition in seven European countries. In the six-country review reported in Wirth et al (2006:523), the non-poor (defined by household income level) in Kenya were reported to be twice as likely as the poor to have a skilled attendant at birth.

These reports were however contrary to the conclusion in Wilkinson (1996:593) that absolute income was unrelated to health among developed countries, but rather health outcome was influenced by a complex interplay of socio-economic factor of which income is a part.

2.5.2.1.2 Health insurance

As a strategy towards expanding access of the public to quality healthcare services, the Federal Government of Nigeria (FGN) established the **National Health Insurance Scheme (NHIS)** through the National Health Insurance Scheme Decree No. 35 of 1999 Law of the Federal Republic of Nigeria. The decree stated the objectives of the NHIS to include ensuring that every Nigerian has access to good healthcare services, protection of families from financial hardship of huge medical bills, ensure equitable distribution of healthcare cost and ensure efficiency in healthcare services (FGN 1999:3). The review of several studies on the potential implication of community health insurance on EOC in Africa showed that health insurance contributed to higher service utilization among scheme members than non-scheme members (Soors, Waelkens and Criel 2008:160). In Ghana for example, membership of the Nkoranza community health plan was associated with 12% increase in institutional deliveries, and insured women were twice likely to benefit from caesarean section when required (Soors et al 2008:160).

There were equity concerns however with regards to coverage and benefit of health insurance in low and middle income countries for those with highest health needs (the poor). National health insurance scheme in countries like India (Meng, Yuan, Jia, Wang,

Yu, Gao and Garner 2011:94) and Nigeria (Ibiwoye and Adeleke 2000:220) are limited to the formal sector employees. Community health insurance schemes are also not accessible to the poor who cannot afford the premium fee (Soors et al 2008:169). Where health insurance are accessible, insurance coverage was limited with implication for health benefit (Meng et al 2011:94). In the context of this study, exclusion of the informal sector in the NHIS is a major concern for women to access maternal healthcare services as more than 50% of Nigerian women were employed in the informal sector like sales and service; skilled and unskilled labour, and agriculture during the period covered by the 2008 NDHS (NPC 2009:42). Worse still for women, NPC (2009:45) reported that almost all Nigerian women (98%) interviewed in the 2008 NDHS had no health insurance coverage during the five years preceding the survey.

2.5.2.1.3 Primary health care coverage

The coverage of **Primary Health Care** (PHC) clinics in Nigeria was used in this report to explore the availability of regular source of health care including the nature of the regular source of care available to women as contextualized under family resources within the enabling characteristics of individual in Andersen and Newman (2005:15). The Nigerian government is committed to universal coverage of PHC services as articulated in the revised national health policy (FMOH 2004:5). According to Abdulraheem, Olapipo and Amodu (2012:5) however, coverage of PHC in Nigeria is low at 20% of potential patients depicting a major access barrier to regular source of health care (PHC).

Where PHC centres are available, Lanre-Abbas (2008:sa) argued that the physical existence of the facilities in the sense of 'bricks and mortar' does not necessarily mean they are functional. This assertion was further reinforced in FMOH (2004:2) where available PHC centres in Nigeria were noted to serve between 5 – 10% of their potential patient load. Reasons for the low utilization of PHC in Nigeria included insufficient number of health workers, poor transportation network to the PHC center (Abdulraheem, Olapipo and Amodu 2012:6) and loss of patient confidence (FMOH 2004:2) in the services provided.

In addition to physical access and perception of consumers, Babalola and Fatusi (2009:sa) found that the ratio of PHC centres to the population served was a predictor for the usage of ANC services among pregnant women in Nigeria. The relationship was such that the larger the number of residents to a PHC center, the less the odds of using ANC in the PHC center. Going by the low insurance coverage and low income level of women as earlier discussed, access to available PHC centres is further constrained in Nigeria.

2.5.2.2 Community attributes

Community attributes that enable individual utilization of healthcare services included the price of health services, availability of health personnel and the urban-rural characteristics of the location where the individual lives (Andersen and Newman 2005:13).

2.5.2.2.1 Government health expenditure

The lack of adequate national investment in maternal healthcare services which in-turn results in OOPP has continued to exclude women from accessing healthcare services due to “cost”. Similar to the low (20%) proportion of the THE by the government in Nigeria as earlier discussed in Section 1.2 (HERFON 2006: 201), it was estimated that 34 out of the 46 countries in the WHO African region (including Nigeria) spent less than US\$35 per capita on health services including EOC (Kruk, Galea, Prescott and Freedman 2007: 304). The report further stated that 29 of the countries spent US\$20 per capita or less on health.

The public expenditure on health as at the time of developing the revised National Health Policy in Nigeria was less than US\$8 per capita in Nigeria (FMOH 2004:2). This expenditure is a far cry from the US\$35 per capita estimated for an essential basket of health services (including EOC) in low-income countries by the WHO commission on macroeconomics and health (Kruk et al 2007:304). As such, an unfair share of the medical expenses for maternal healthcare is transferred to the woman and her family (as user fee), the implication of which is discussed below.

2.5.2.2.2 User fee

Addressing the gap in funding as discussed above, health facilities have resorted to user fees for some components of care and in some cases for the complete package of care.

The WHO estimated that direct (out-of pocket) cost of maternal healthcare ranged between 1 and 5 per cent of the total annual household expenditure, rising to between 5 and 34 per cent if the woman suffers maternal complications (Richard et al 2008:12).

Introduction of user fees does not only affect the demand for obstetric care, it also makes the household vulnerable to financial shock. Available information from Nigeria in Borghi, Storeng and Filippi (2008:35) reported that facility-based deliveries fell by 46 to 50 per cent following introduction of fees in one hospital in South West Nigeria. In addition to user fee (for services), Borghi et al (2008:26) in the review of studies on cost of obstetric care noted that cost span beyond medical cost for service delivery to include cost of transportation and time cost as well as un-official payments associated with care. The review concluded that the interaction of these several cost items results in catastrophic expenditure⁴ for the household especially in the case of obstetric complications (Borghi et al 2008:40). Information from the 2008 NDHS reported that the leading barrier to seeking healthcare for Nigerian women was getting money for treatment with 56% of women reporting this as a serious problem (NPC 2009:138). This financial barrier was linked to the negative correlation between education and wealth quintile of Nigeria women who were mostly uneducated and in the lowest wealth quintile and often unable to afford cost of health care (Lanre-Abbas 2008:sa).

2.5.2.2.3 Location of residence

The urban-rural characteristics of the location where individuals live and its impact on utilization of health services have been established in literature (Mekonnen and Mekonnen 2003:376-8; Say and Raine 2007:814; Zere, Tumusiime, Walker, Kirigia, Mwikisa and Mbeeli 2010:5) with an overall pattern in favour of urban women for delivery care and a somewhat mixed pattern for ANC utilization. Findings from different settings however differ in some instances.

The systematic review of inequalities in the use of maternal healthcare in developing countries in Say and Raine (2007:814) reported significant utilization of skill health workers at delivery in favour of women in urban locations compared to those in rural locations. A

⁴ Catastrophic expenditure refers to expenditures that consume more than 10% of household income (Borghi et al 2008:33)

mixed pattern was however reported for utilization of ANC services in the same systematic review. According to Say and Raine (2007:815), urban women in Jamaica were significantly less likely ($P < 0.05$) to attend ANC compared to rural women. In contrast, studies from India reviewed in Say and Raine 2007:814) either reported no difference in utilization or significant difference ($p < 0.01$) in favour of urban women.

In Ethiopia, better access to ANC and utilization of professional assistants at delivery were reported for women in urban locations. Specifically, the odds for a woman living in Addis Ababa (country capital) and other urban locations to access ANC services were ten and four times more likely than for women in rural areas (Mekonnen and Mekonnen 2003:376). The odds were forty times more likely for women in Addis Ababa to receive professional assistance at delivery compared to their counterparts living in rural areas (Mekonnen and Mekonnen 2003:378).

In the study of inequities in the utilization of maternal health interventions in Namibia, Zere et al (2010:5) reported that women living in rural areas in Namibia used home deliveries about five times more (rate ratio of 0.2) than those living in urban areas. The same was true for delivery by traditional birth attendants and relatives as compared to the use of professional skilled attendants at birth among rural women. Women in urban areas were delivered by skilled providers 30% more than their rural counterparts. The study in Namibia however did not record any urban – rural difference in the utilization of ANC services.

2.5.3 Illness level

According to Andersen and Newman (2005:16), where the predisposing and enabling characteristics of the individual to health service utilization have been met, perception of illness by an individual and the clinical evaluation of the condition also influences the nature and extent of care to be sought. Earlier in this report, the importance attributed to first pregnancy and childbirth was discussed as a reflection of personal perception associated with pregnancy and childbirth.

In addition, the importance of EOC especially for complicated deliveries was established in Adeyi and Morrow (1996:124–5). Where such obstetric complications were detected (through clinical evaluation), specialized medical care is offered at additional cost. The

financial burden occasioned by the extra cost for specialized care on women and their family was discussed earlier in this report (Richard et al 2008:12).

2.6 CONCLUSION

Poverty, relative deprivation and social exclusion have impact on health (WHO 2003:16). The review of literature in this section indicated that different social and economic characteristics of women / mothers influenced their utilization of maternal healthcare services and thence maternal health outcome. Adopting the multi-dimensional approach to the definition of poverty (UNICEF 2006:34) as the deprivation of basic capabilities (in social and economic characteristics) of individuals, further understanding of the socio-economic factors that affect utilization of maternal healthcare services and thence maternal health benefit among women in AMAC, Abuja Nigeria is necessary. The findings will contribute to the on-going debate on health system and policy review towards breaking the deprivation cycle of poverty and health outcome for women.

Guided by findings of the literature review in this chapter and the conceptual framework discussed in chapter one of this report, the research design and methodology for the study of socio-economic factors contributing to the exclusion of women from maternal health benefits in Abuja, Nigeria are described in the next chapter. The study population and study sample; the process for data collection and analysis; as well as the ethical consideration in the study are also elaborated.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

In Chapter one, this research was introduced as an empirical health facility-based cross-sectional survey to explore the socio-economic factors contributing to the exclusion of women from maternal health benefits in Abuja, Nigeria. This chapter includes the description of the research design and methodology. While the description of the research design focused on the blueprint of how the research was conducted, the methodology focuses on the processes, tools and procedure utilized in the research (Babbie and Mouton 2004:74-5; Mouton 2001:55).

The description in this chapter covers the research design; the method and procedure for data collection including the development of the data collection instrument; the study population and sampling method; and ethical considerations. This chapter also included measures to control for reliability and validity, as well as the data analysis procedure.

3.2 RESEARCH DESIGN

The research design is a plan or blueprint of how this research was conducted, detailing the plans that were followed during the study to answer the research questions (Babbie and Mouton 2002:72; Mouton 2001:55). The focus of the research design was on the logic of the research and aimed at the kind of evidence that was required to address the research questions (Mouton 2001:56).

Guided by Babbie and Mouton (2004:72), a clear articulation of (i) what the research is intended to explore detailed in chapter one of this report together with (ii) the outline of the process to answer the research questions as described below are the two major aspects of the research design.

In chapter one, the orientation to this study detailed the background to the study including the research problem, purpose and objectives. This research is a non-experimental, facility-based descriptive cross-sectional survey of the socio-economic factors that contribute to the exclusion of women from maternal health benefits in AMAC, Abuja Nigeria and a descriptive survey was selected as the best approach to explore the research questions. Further exploration of the research design is detailed below.

3.2.1 Descriptive study

Descriptive studies are aimed at observing, documenting and describing situation and event in a population (Araoye 2003:55; Babbie and Mouton 2004:180; Grimes and Schulz 2002:145). In the context of this research, descriptive study was utilized to observe and describe the socioeconomic factors that contribute to the exclusion of women from maternal health benefits in AMAC, Abuja Nigeria. The approach (descriptive studies) provide answers to questions relating to who, what, why, when and where and implicitly what within a population (Grimes and Schulz 2002:145) and describe the amount (frequency) and distribution (by person, place and time) of an event within a population (Araoye 2003:55). In Chapter four of this report, several measurements were used to describe the socioeconomic factors that contribute to the exclusion of women from maternal health benefits as such provide answers to the research questions.

According to Grimes and Schulz (2002:146), descriptive studies are broadly categorized into two groups. Studies that deal with (i) individuals like case reports, case series, cross sectional studies and surveillance and (ii) those that examine populations like ecological correlational studies. As this study examined pregnant women (individuals) within the population, a cross-sectional survey was adopted (Babbie and Mouton 2004:232).

Cross-sectional survey describes the characteristics of a representative sample of a larger population (Mouton 2001:152) and was noted as the best method available to social scientists interested in collecting original data (like in the case of this study) for describing a population too large to be observed directly (Babbie and Mouton 2004:232). In this study, the population of pregnant women in AMAC are too large to observe directly; as such a representative sample of the population was studied.

Where appropriate sampling approach was applied (like the case of this study), cross-sectional survey offers the opportunity to generalize findings in a sub-group (like pregnant women attending ANC clinics in the five district hospitals in AMAC) to the general population (of pregnant women in AMAC) as such inform appropriate policy and programme review (Araoye 2003:58; Babbie and Mouton 2004:263; Grimes and Schulz 2002:145; Mouton 2001:153). In addition, cross-sectional survey is most ideal for this research as cost required was small (Araoye 2003:56; Grimes and Schulz 2002:146), data collection was undertaken as a single observation and information were generated quickly (Araoye 2003:58; Grimes and Schulz 2002:145) to accommodate the limited timeframe for the completion of the research.

In line with the fact that descriptive studies provide information for planning and programme implementation, and make comparison between groups (Araoye 2003:55), recommendations were made in Chapter five of this report on how to improve coverage of maternal healthcare service utilization among women in AMAC, Abuja Nigeria based on the findings of this study. Consistent with the fact that descriptive studies serve as first foray into an area of enquiry (Grimes and Schulz 2002:145), the findings of this research have opened up additional enquiries (Chapter 5) into socio-economic factors that limit full benefits from investment in maternal healthcare in Nigeria.

3.3 RESEARCH METHOD

The research method focused on the process, tools and procedure utilized in the research process (Babbie and Mouton 2004:74-5; Mouton 2001:55). In this section, the sampling, data collection approach and ethical consideration in data collection were discussed. The discussion was followed by the description of the process for data processing, analysis and management.

3.3.1 Sampling

Sampling is the process of selecting observations (Babbie and Mouton 2004:164) within the study population in a study. The study population, sample size determination, sampling method and method of selecting research subjects for the study of the socioeconomic

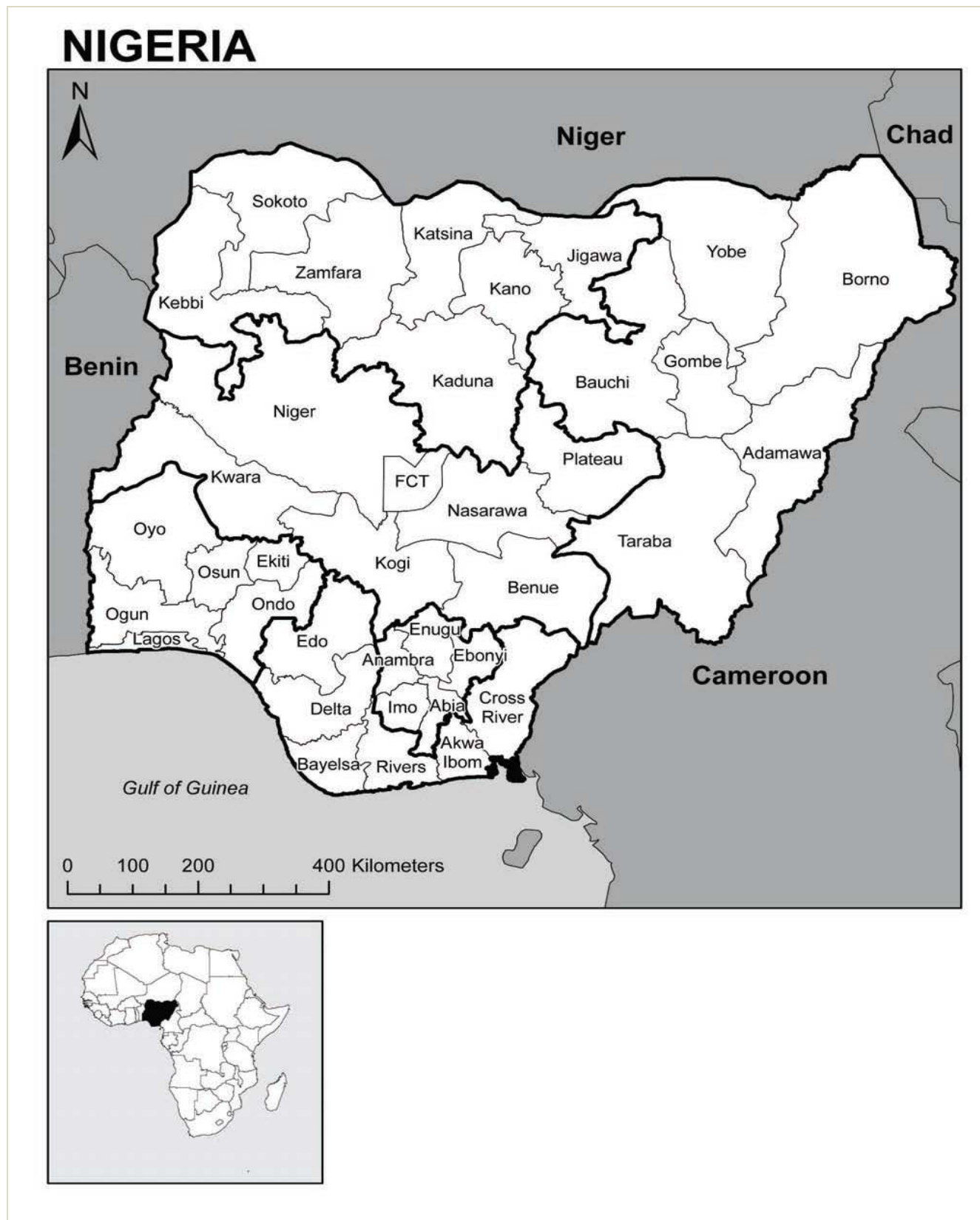
factors contributing to the exclusion of women from maternal health benefits in Abuja, Nigeria are discussed in this sub-section.

3.3.1.1 Study population

The study population comprised the group of individual units being investigated, i.e. the population from where the study sample would be drawn (Araoye 2003:115; Babbie and Mouton 2004:174). In this study, all pregnant women attending ANC clinic in the five district hospitals (study site) in AMAC, Abuja Nigeria constituted the study population. Inclusion criteria for the study were pregnant women irrespective of their age, religion and tribe (i) with past pregnancy history irrespective of pregnancy outcome as data collected were related to past pregnancy history and (ii) currently registered at the ANC clinic of the study sites. Exclusion criteria were women (i) attending ANC in other health facilities other than the five district hospitals and (ii) female relations accompanying pregnant women to the study sites irrespective of their pregnancy status (except if registered in the same facility). The demographic characteristics of Abuja, Nigeria are discussed below.

3.3.1.1.1 Demographic characteristics and political structure of Nigeria

The Federal Republic of Nigeria lies within latitude 4°16' and 13°53' north and longitude 2°40' and 14°41' east (NPC 2009:1), and bordered by Niger Republic in the north, Chad in the northeast, Cameroon in the east and Benin Republic in the west. The Gulf of Guinea in the Atlantic Ocean bounds the country to the south. The total population from the 2006 national household and population census was 134 million accounting for 2.04% of the global population (NPC 2010a:6). The country occupies 923,768 square kilometres (NPC 2009:1) and currently divided into 36 states and the Federal Capital Territory (FCT) - Abuja (See Figure 3.1). The 36 states are grouped into 6 geo-political zones (North-East; North-West and North-Central; and South-East, South-West and South-South) and are comprised of 774 **Local Government Areas (LGA)**.



(Source: NPC 2009:xxx)

Figure 3.1: Map of the Federal Republic of Nigeria showing States and the Federal Capital Territory (FCT) – Abuja

3.3.1.1.2 Demographic characteristics of Abuja, Nigeria

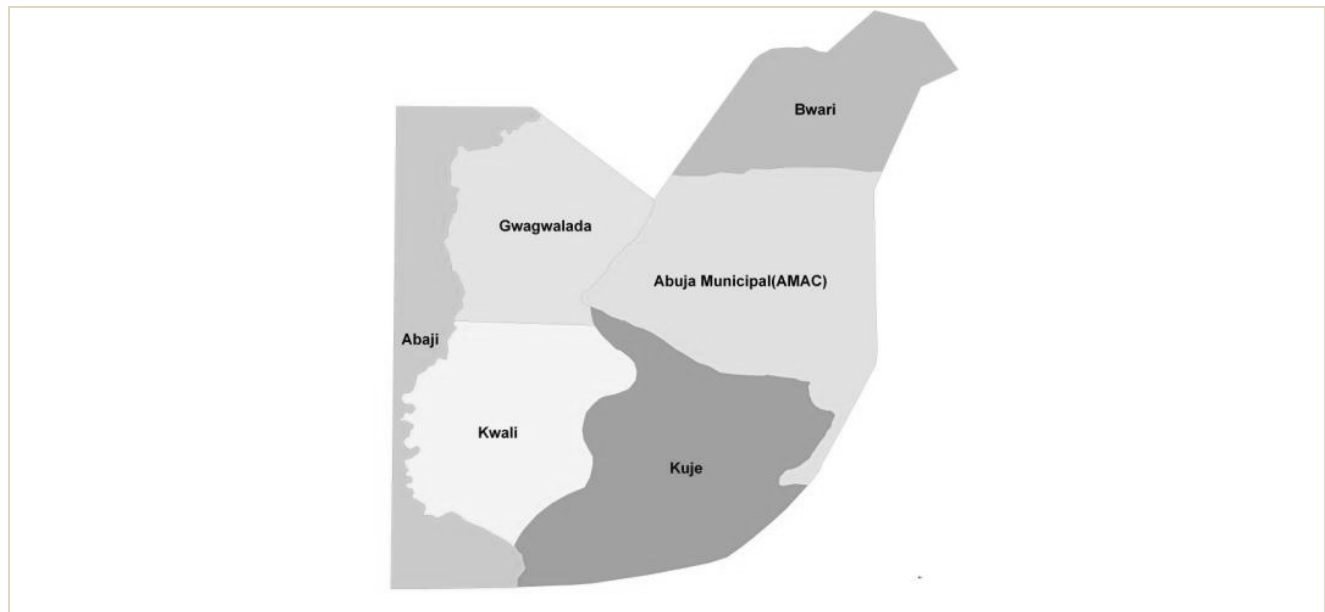
Abuja, the **Federal Capital Territory (FCT)** of Nigeria, occupies 7.75 square kilometres in the North-Central Zone of the country. Abuja is sub-divided into 6 Area Councils (See Figure 3.2), and has a total population of 1.4 Million – 52% males and 48% females (NPC 2010a:36). Table 3.1 presents the demographic distribution (by gender) of the population in Abuja, Nigeria.

Table 3.1: Population Distribution in Abuja, Nigeria by Area Councils

Area Council	Distribution			Percentage
	Male	Female	Total	
Abaji	28,860	29,782	58,642	4.2
Abuja Municipal Area Council (AMAC)	415,951	360,347	776,298	55.2
Bwari	115,346	113,928	229,274	16.3
Gwagwalada	80,182	78,436	158,618	11.3
Kuje	49,420	47,813	97,233	6.9
Kwali	43,413	42,761	86,174	6.1
Total	733,172	673,067	1,406,239	
	52.1%	47.9%	100.0%	

(Source: NPC 2010a:36)

Abuja Municipal Area Council (AMAC) is the most populated area council, inhabited by more than half (55%) of the total population in Abuja, Nigeria. AMAC is divided into five districts namely Asokoro, Garki, Karu, Maitama, and Wuse Districts. According to NPC (2010b:357), 58.2% of all the women in Abuja were aged 15 – 49 years - reproductive age.



(Source: NPC 2010a:36)

Figure 3.2: Map of the Federal Capital Territory (FCT) – Abuja showing the Area Councils

3.3.1.2 Sample size determination

The sample size for this study was estimated *a priori* using the formula $n = z^2pq / d^2$, **where** **n**= sample size, **z**= standard deviation set at 1.96 corresponding to 95% confidence interval, **p**= the proportion in the target population estimated to have a particular characteristics (utilized maternal healthcare services) estimated to be 50% or 0.50, **d** = degree of accuracy usually set at 0.05 and **q**= 1 – p (Araoye 2003:119).

Thence, sample size **n**= $(1.96)^2 (0.5) (0.5) / (0.05)^2 = 384$.

Equal allocation of samples per health facility (384 samples / 5 health facilities) was done due to the lack of reliable planning data at the FCT department of health for district level population as well as lack of disaggregated data beyond the level of the area council in the report of the national census and household survey (NPC 2010a:36). As such 77 women of reproductive age defined as individuals between the ages of 15 – 49 years (NPC 2009:51) who met the inclusion criteria defined above (under study population) were identified in each facility and included in the study. This brings the total sample size to 385 respondents. The process of selecting samples is described below.

3.3.1.3 Subject selection

The selection of sample participants from each study site was undertaken by simple random sampling. Considering the fact that the district hospital operated multiple ANC clinic days per week (Table 3.2), proportionate allocation of samples to each clinic day was done in each district hospital. The ante-natal register of the facilities were used as the sampling frame. Specifically, the following steps were followed.

- All pregnant women registered in the ANC clinic and recorded in the ante-natal register of the facility during the week of data collection were clustered into two groups by parity i.e. first pregnancy and two or more pregnancy history.
- Based on the inclusion criteria defined under the study population, women with two or more pregnancy history were included in the study.
- The number of women interviewed per ANC clinic day was calculated using the formula $(a / A) \times N$, where **a** = total number of registered women with pregnancy history of two or more per clinic day in a facility, **A** = total number of registered women with pregnancy history of two or more in a facility (district hospital) in the week of data collection (total for all clinic days), and **N** = allocated sample size per district hospital – already determined in the earlier section of this report as 77 women of reproductive age group.

Simple ballot during the respective clinic days was used to determine women to be interviewed in each facility. Where a selected woman in a clinic declined, another woman identified by simple ballot was interviewed till the allocation for the clinic day was met.

Table 3.2 presents the allocated number of women per clinic day per facility.

Table 3.2: Allocated Sample Size per ANC Clinic Days

Districts (Location of health Facility)	Clinic Day	Number of Women with Parity 2+ enrolled (a)	Calculated Sample Size per day (a/A) X N
Asokoro	Thursday	58	49
	Friday	33	28
	Total (A)	91	
Garki	Monday	40	23
	Thursday	92	54
	Total (A)	132	
Karu	Monday	200	37
	Tuesday	221	40
	Total (A)	421	
Maitama	Tuesday	68	57
	Wednesday	24	20
	Total (A)	92	
Wuse	Monday	150	30
	Tuesday	126	25
	Wednesday	112	22
	Total (A)	388	

3.3.2 Data collection

The instrument, process and ethical consideration in the data collection exercise for this study are discussed in this section. The measures to ensure internal validity of the research instrument are discussed later in this report under section 3.5.

3.3.2.1 The survey instrument

A quantitative data collection instrument (questionnaire) was developed for this study. The instrument was informed by the conceptual framework for this research as well as the review of literature in Chapter 2 of this report. According to Babbie and Mouton (2004:646), questionnaires are used primarily in survey research; and they contain question items and other types of items designed to elicit information appropriate for analysis. Guided by the

assertion in Mouton (2001:100) that researchers may either use existing instruments or develop a new one, the women questionnaire used for the 2008 NDHS (NPC 2009: 527 – 599) was adapted into a new instrument for this study. This was done as the 2008 NDHS explored information among women of reproductive age group (same as this study), included key questions on contraception, ANC, delivery care and PNC and was approved by the **Nigerian Health Research Ethics Committee (NHREC)** for use in Nigeria.

Based on the relevance of the existing tool, some question items were adapted for use in this study (Mouton 2001:102). However, the tool for this survey differs from the original instrument as it focused on addressing the research questions i.e. informed by the conceptual framework for this survey (Araoye 2003:133), and included question items on household income, and the direct and indirect cost / expenditure related to maternal healthcare utilization.

The survey questionnaire was originally developed in English language. In recognition that Hausa language is the most widely spoken language in Abuja, Nigeria, the research instrument was translated (and re-translated) to Hausa language, the common medium of communication in Abuja, Nigeria. As such allowing comfort level for the research participants. This assumption was later validated through the pilot exercise.

In the survey instrument, simple short question items and statements were used to avoid confusion (Babbie and Mouton 2004:237-8). The questionnaire was comprised mostly of closed ended questions with categorical answer options that were mutually exclusive (Araoye 2003:134; Babbie and Mouton 2004:233-4). Question items relating to household income; expenditure related to maternal healthcare utilization; house address and state of origin were however not provided with response options. This allowed for better specificity and categorization during data analysis; and also accommodated situation where standard national averages were not available.

Regarding household income for example, the national range for household income was not readily available due to the mix of formal and informal sector of the economy as well as the dichotomy in the national salary and wage scheme between the federal and state

government in Nigeria. The National Minimum Wage Act of year 2000 stipulated a minimum wage of Naira 5,500 for employees of state government and the private sector and a wage of N7, 500 for employee of the federal government (Aminu 2000:12) in Nigeria. The revised National Minimum Wage Act (FGN 2011:3) stipulated a minimum wage of Naira 18,000 for all workers in Nigeria. However, implementation of the new regulation is un-even and dependent on the employer. More so, establishing a response scale for household income will exclude many groups in the informal sector. In the period covered by the 2008 NDHS, more than 50% of all Nigerian women were employed in the informal sector like sales and service; skilled and unskilled labour, and agriculture (NPC 2009:42) where minimum wage does not apply.

A three scale Likert response type (Babbie and Mouton 2004:153) answer options were used to measure the satisfaction level with regards to the utilization of the different maternal healthcare services among respondents in the research instrument.

3.3.2.2 Content of the survey instrument

The questionnaire for this study was comprised of four major sections namely (i) socio-economic characteristics; (ii) contraception; (iii) past pregnancy and post natal care; and (iv) health insurance scheme. Prior to these sections, the introduction to the questionnaire detailed the purpose of the research and assured respondents of the confidentiality of the information provided. The preliminary part of the questionnaire included instruction to the enumerator on how to apply the questionnaire, and included instruction to administer the consent form and secure the consent of respondents before the data collection. The questionnaire also included an identification column to record and codes the name of the district where the interview took place as well as the language of the interview.

See Annex A for the survey instrument, and Annex B for the consent form.

3.3.2.2.1 Section 1: Socio-economic characteristics

Question items to establish the background characteristics of the respondents were included in this section. The question items explored information related to bio-data of respondents, their social information like residence, religion and ethnic grouping as well as

economic information like estimated household income, occupation and employment history.

3.3.2.2.2 Section 2: Contraception

This section comprised question items intended to elicit information on the knowledge of contraception among respondents as well as their experience of usage of contraceptive methods. The section also explored information on expenditure and satisfaction level with regards to utilization of contraceptive services.

3.3.2.2.3 Section 3: Past pregnancy and post natal care

Question items on past pregnancy history, delivery and post natal care were included in this section.

Question items on past pregnancy history included information on where ANC was sought as well as the personnel that provided the service. It also included the number of ANC visits, whether pregnancy was carried to term as well as expenditure and satisfaction level with regards to utilization of last ANC service.

Experience on delivery care was explored among respondents who carried their last pregnancy to term. This included question items on the location of delivery care, the type of attendant (personnel) at birth, and information with regards to complications during delivery, and additional cost for delivery care. This section also included question items with regards to the provider of post natal care, as well as the time of seeking PNC services.

In view of the sensitive nature of information with regards to abortion, miscarriages and still birth, question items on these issues were included at the end of this section.

3.3.2.2.4 Section 4: Health insurance scheme

The health insurance coverage of the respondents was explored in this section. The question items explored information on the coverage or otherwise of the respondents by any form of health insurance in relation to past utilization of maternal healthcare service

for contraception, pregnancy, and delivery and postpartum care. The section also explored the type of health insurance the respondents were covered with.

3.3.2.3 Pre-testing of the survey instrument

In December 2012, the survey instrument was pretested among 53 pregnant women during the ANC clinic of the general hospital in Bwari Area Council of Abuja, Nigeria. Bwari Area Council of Abuja was chosen for the pilot as it was the second most populated Area Council in Abuja (NPC 2010a:36) after AMAC during the period of this study. In addition, the population in Bawari Area Council were similar in characteristics to the population in AMAC.

The purpose of the pilot-testing was to ensure the question items were comprehensible to the research participants. The exercise was used to determine whether a revision of the format of the questionnaire with regards to wording, sequencing and additional instruction was required and to protect against errors (Araoye 2003:69–70; Babbie and Mouton 2004:244).

Based on the findings from the pilot exercises, additional information on the need to administer the consent form was included in the preliminary part of the instrument; interview language was limited to English and Hausa languages, open ended questions were introduced for household income and expenditure as discussed earlier in this report and the data collection instrument was finalized.

3.3.2.4 Data collection process

The processes and considerations leading to the collection of data from the research participants are described in this sub-section.

Considering the fact that 46% of Nigerian women cannot read at all i.e. not literate (NPC 2009:35), an interviewer administered approach was adopted for the data collection exercise. Five data collection personnel and a supervisor (statistician) were recruited to facilitate the data collection exercise. The recruited personnel were identified from an existing national pool of enumerators who had been involved in data collection in previous

national studies on reproductive health like the NDHS, NARHS and MICS. As such they were familiar with both the research topic as well as context of the data collection exercise. In addition to past experience in data collection, the personnel also had good understanding of both spoken and written communication competencies in English and Hausa languages to allow quality interaction with the research participants.

Prior to data collection, the research personnel undertook an orientation session on the purpose of the research as well as the content of the data collection instrument. This session allowed for the clarification of issues raised by the field personnel and to ensure the **SKIP** instructions in the questionnaires were fully understood. In addition, experience from the pilot exercise was shared with the data collectors.

Field level data collection took place in March 2013. Respondents (pregnant women) were interviewed in the ANC clinic of the five district health facilities in AMAC, Abuja over a period of one week in each facility. The one week duration for the data collection in each facility was undertaken to avoid double counting as the practice in Nigeria was to place pregnant women in the last trimester on weekly appointment to ANC clinics. In the ANC clinics, the interview with the pregnant women was undertaken in the preferred language of the research participants (Hausa or English language). The researcher and a statistician who supported the data analysis supervised the data collection exercise.

The measures described above were undertaken to minimize measurement error due to situational factor and the measurer (Cooper and Schindler 2003:230). Specifically, situational factors were addressed through the facility-based setting for the survey and the language option for the interview, and error due to the measurer addressed by ensuring the data collection personnel were experienced and trained.

3.3.3 Ethical considerations in data collection

According to Mouton (2001:238), the ethics of science concerns what is wrong and what is right in the conduct of research. The primary value of ethics in research is to ensure research subjects were protected from both physical and psychological harm (Patten 2002:25). Araoye (2003:13) stated that ethical considerations should be made from the

beginning of project design and at various stages through to the end. The ethical considerations in this research discussed in this sub-section included the right to full disclosure about the research, refusal to participate in the research, the right to anonymity and confidentiality, and the right not to be harmed in any manner (Mouton 2001:243).

3.3.3.1 Right to full disclosure about the research

As stated in Patten (2002:25), informed consent is one of the key approaches to assure ethical considerations in research. As part of the right to full disclosure, the research participants were informed about the general purpose of the study and the process of data collection. In addition, the data collection personnel administered the consent form (See Annex B) to the research participants and those (research participants) who did not give their consent were not included in the research. The consent form was translated into Hausa language and administered in the preferred language of the respondents. For respondents who were 18 years and older, verbal consent was secured and documented in the consent form; while for respondents younger than 18 years, the verbal consent of their relative (who is above the age of 18 years) accompanying them to the health facility was secured and documented by the interviewer. Specifically, the purpose of the research was explained in the preferred language (English or Hausa) to both the research participants who were less than 18 year old as well as their accompanying adult relative. Consent was documented where both the research participant (aged less than 18 years) and the accompanying adult(s) agree to continue with the research.

In addition, prior permission was obtained from the **Federal Capital Territory (FCT) - Abuja Health Research Ethics Committee (FHREC)** for the conduct of this survey. See Annex C for the notice of approval after committee review for the study (Protocol Approval Number: *FHREC/2012/01/03/21-3-12*). These approaches were undertaken to assure full disclosure as an ethical consideration in this study (Mouton 2001:244; Patten 2002:25).

3.3.3.2 Right to privacy and refusal to participate

During the data collection exercise, the respondents who gave their consent to participate in the survey were informed that their participation was voluntary (Mouton 2001:243). In the same vein, the pregnant women were offered the option of opting out of the study at any time.

3.3.3.3 *Right to anonymity and confidentiality*

According to Mouton (2001:244), anonymity refers to the principle that the identity of the research participants are kept secret, and confidentiality refers to the fact that the information gathered from the participants will not in any way be linked to them. In this study, the research participants were not required to provide their names, and in the consent form they were assured that information collected from them would be kept confidential and that their identity would not be revealed.

3.3.3.4 *Right not to be harmed in any manner*

The process of conducting research can either become psychologically threatening (Babbie and Mouton 2004:522) or expose the subjects to substantial risk or personal harm (Mouton 2001:245) which must be considered as part of ethical considerations. In this study, the data collection exercise took place at ANC clinics to ensure the pregnant women were not intimidated during the data collection exercise because some of the question items were sensitive and related to sexual and reproductive health behaviour. In addition, trained data collection personnel that were familiar with both the local language (Hausa) and the cultural context were engaged.

3.4 DATA PROCESSING, ANALYSIS AND MANAGEMENT

This section included the process of handling data after collection. The process included the review of the completed questionnaires, data entry and data analysis. The services of a statistician who supervised the data collection exercise were employed for quality management of data processing and analysis.

3.4.1 Data processing

The review of the completed questionnaires including sifting and sorting for completeness were undertaken by the researcher together with the statistician. Owing to the interviewer administered data collection technique adopted for this study, all the 385 questionnaires administered during the exercise were returned. One questionnaire was however not included in the data analysis as majority of the question items in the questionnaire were

unanswered. Thus 384 completed questionnaires were included in the analysis, translating into a response rate of 99.7% for this study.

A data entry template based on the questionnaire was developed by the statistician using the **C**ensus and **S**urvey **P**rocessing system (CSPPro). The template was reviewed prior to data entry by the researcher with the statistician. The data entry software (CSPPro) was ideal for the purpose of this survey as CSPPro was used for data entry in a similar study in Nigeria (NPC 2009:9). In addition, the software was easily adaptable to mimic the original paper form of the survey instrument and developed to accommodate controls based on the responses and SKIP instructions to minimize errors.

The responses in the completed questionnaires were entered in the template using pre-assigned codes in the questionnaire (see Annex A) under the supervision of the statistician.

3.4.2 Data analysis and management

The analysis of the data was undertaken by the researcher with support from the statistician using **S**tatistical **P**ackage for **S**ocial **S**ciences (SPSS) version 20. Microsoft excel was used for plotting charts. Dummy tables of the analysis (Araoye 2003:164) were developed by the researcher to guide the analysis. The data analysis included descriptive statistics of the dependent and independent variables; cross tabulations of the independent variables against utilization of maternal healthcare services; as well as logistic regression. Measurements of inequality in maternal healthcare service utilization and vertical equity in the payment systems for maternal healthcare services were also undertaken.

3.4.2.1 Descriptive statistics

In this study, the descriptive statistics of the different SEC of the respondents as well as the different measures of their utilization of maternal healthcare services were undertaken to identify and summarize the characteristics of the sample population with respect to the different variables. In addition to socio-economic characteristics, the analysis included the distribution of the pregnant women by birth order (up to the last pregnancy), direct

payment (expenditure) for maternal healthcare services and satisfaction level towards maternal healthcare services received; as well as their coverage by health insurance. The analysis included mean, standard deviation, median, range and percentages (Araoye 2003:168; LSHTM and UNICEF 2008:10-16). Since the household income and direct expenditure for maternal healthcare services were not normally distributed among the respondents, the median was used as a measure of central tendencies (Araoye 2003:177). The range was used as a measure of dispersion (Araoye 2003:177) to initially categorize the respondents into five income groups (lowest, second, middle, fourth and highest). Due to the low case count in higher income groups, respondents in the middle, fourth and highest quintiles were categorized together as higher income group to create a three-scale income category of 'lower', 'average' and 'higher'. The original five scale for total household income was however applied in the measure of inequality in maternal healthcare service utilization.

A three scale knowledge category of contraceptive methods was established for the analysis. In the analysis of the knowledge of contraceptive methods, respondents were asked to respond (Yes or No) to 13 question items relating to different contraceptive methods. A score of **1** was allocated for every correct statement selected and a score of **0** allocated for any wrong statement selected or any correct statement left un-answered. The summation of the scores in this question item was calculated to a maximum of **13** for each respondent; and plotted on a normal distribution curve to determine the mean (x_k) knowledge score and standard deviation (s_k). The knowledge of contraceptive methods among the respondents was then categorized as '**Good**' for those who lie above $(x_k + s_k)$; '**Average**' for those within $(x_k \pm s_k)$; and '**Poor**' for those below $(x_k - s_k)$ on the normal distribution curve (Kirkwood and Sterne 2003:45-7).

3.4.2.2 Cross tabulations

Inspired by Wirth et al (2006:520) that wealth alone (in the context of this study total household income) is not the most appropriate way to measure inequality in health, six (6) socioeconomic stratifiers (independent variables) were included in the bivariate analysis in this study to depict the different dimension of exclusion of women of different SEC from maternal health benefits. Similar to the independent variables included in Kistiana (2009:

23 – 28), the stratifiers included in this study were maternal age, maternal education, birth order, and location of residence during the last pregnancy, household income and health insurance coverage. The definition and necessary adjustments to the stratifiers used in the analysis were based on the categorization in the 2008 NDHS, as well as the distribution of the different sub-classifications of the stratifiers as informed by the univariate analysis. See Table 3.3 for the definitions as well as adjustments undertaken for the six stratifiers.

Table 3.3: Definition and Adjustment to Stratifiers used for Bivariate Analysis

Socioeconomic Stratifiers	Definitions	Adjustments
Maternal Age	Age group of the woman	<ul style="list-style-type: none"> • Adolescent (less than 20 years); • Young Adult (20 – 34 years); and • Adult (35 years and older).
Maternal Education ⁵	Highest Education level of the woman	<ul style="list-style-type: none"> • None / Primary education (inclusive of did not complete primary education); • Secondary education (inclusive of did not complete secondary education); and • Post-Secondary education.
Birth Order	Number of times the respondents had ever given birth including the last pregnancy experience	<ul style="list-style-type: none"> • One; or • More than one.
Residence	Location where the woman lived during the last pregnancy	<ul style="list-style-type: none"> • Urban; or • Rural.
Income Group	Based on the household income categories established under univariate analysis	<ul style="list-style-type: none"> • Lower; • Average; and • Higher.
Insurance Status	Reported coverage by any form of health insurance	<ul style="list-style-type: none"> • Covered ('Yes');or • Not Covered ('No').

⁵ Respondents with no education and those with primary education were combined due to the very low case count for those with primary education.

Specific utilization measures for the four maternal healthcare services (contraceptive, ANC, Delivery Care and PNC services) were also defined and included in the cross tabulations. Specifically, dichotomous measures of quality maternal healthcare services utilization were created as detailed in Table 3.4.

Table 3.4: Definition and Classification of Dichotomous Measure of Quality Maternal Healthcare Service Utilization

Maternal Healthcare Service	Definition	Dichotomous Measure
Utilization of Contraceptive Services	Proportion of respondents who reported the use of any contraceptive method during the last time they used contraceptive services	<ul style="list-style-type: none"> Used modern contraceptive methods⁶ = used pill, intrauterine device, injectable, implants, male and female condom, diaphragm, foam / jelly, Lactational amenorrhea method and emergency contraceptive, (NPC 2009:66) Did not use modern contraceptive methods = Used any other type of contraceptive methods including those reporting none usage
Utilization of ANC Services	Proportion of respondents who reported they received ANC during their last pregnancy	<ul style="list-style-type: none"> Received ANC from skilled providers - doctor, nurse, midwife, auxiliary nurse / midwife (NPC 2009:126) Did not receive ANC from skilled provider = Received ANC from TBA, others or did not receive at all
Utilization of Delivery Care Services	Proportion of respondents who reported they were assisted at delivery during their last pregnancy	<ul style="list-style-type: none"> Delivered by skilled attendants - doctor, nurse, midwife, auxiliary nurse / midwife (NPC 2009:134) in a public or private health facility Did not receive skilled attendant at birth = Delivered by TBA, relative, friends at home or any other informal facility
Utilization of PNC Services	Proportion of respondents who reported the receipt of PNC services after the delivery of their last child	<ul style="list-style-type: none"> Received post natal check-up from any medical personnel (doctor, nurse, midwife, auxiliary nurse / midwife) at any time after delivery Did not receive PNC from medical personnel = Received post natal check-up from TBA or any other non-medical personnel at any time after delivery including those that did not receive PNC

A comparison of every stratification class as defined in Table 3.3 was undertaken for each of the dependent variables as defined in Table 3.4 to test the null hypothesis (H_0) that there was no significant statistical difference for all the classes defined by the stratifiers in

⁶ This excludes male and female sterilization which were not included in this study.

the utilization of the maternal healthcare services (Wirth et al 2006:520). Chi-square analysis for statistical significance was done, and the differences interpreted where $p < 0.05$ (Onwujekwe et al 2008:4; Wirth et al 2006:520).

3.4.2.3 Measures of Inequality

The approach to establish inequality in maternal healthcare utilization and the payment system for services among respondents were discussed below.

3.4.2.3.1 Inequality in the utilization of maternal healthcare services

The measure of inequality in the utilization of maternal healthcare services in this study was the concentration index (O'Donnell, van Doorslaer, Wagstaff and Lindelow 2008:95; Onwujekwe et al 2008:4; Wagstaff, Paci and Van Doorslaer 1991:548). In O'Donnell, et al (2008:95), the **Concentration Index (CI)** was defined with reference to the concentration curve and represents twice the area between the concentration curve and the line of equality (the 45-degree line). The CI lies between -1 and +1, and in the case in which there is no socioeconomic-related inequality, the concentration index is zero.

The convention is that the CI takes a negative value when the concentration curve lies above the line of equality, indicating disproportionate concentration of the health variable among the poor, and a positive value when it (concentration curve) lies below the line of equality. In the context of this analysis, a negative value indicated that utilization of maternal healthcare services was higher among the poor and a positive value when service utilization was concentrated among the rich based on the five income grouping originally established for this study as discussed in Section 3.4.2.1.

3.4.2.3.2 Vertical equity in direct payment for maternal healthcare services

The summation of all expenditures (commodities, drugs, consultation and transportation) reported by the respondents in relation to the utilization of maternal healthcare services was computed as the direct payment for maternal healthcare service utilization during data analysis. Vertical equity (progressivity or regressivity) in direct payments for healthcare among respondents was determined using the Kakwani index (**K**) (De Maio 2007:851; Mastilica and Božikov 1999:154; The construction of Lorenz curve 2010:2).

The analysis of the relationship between the ability to pay (proxied by household income grouping) and direct payments for maternal healthcare service utilization involved the plotting of two curves – the Lorenz curve (The construction of Lorenz curve 2010:2) and the direct payment concentration curve (O'Donnell et al 2008:83). The Kakwani index represents twice the area between the Lorenz curve and the direct payment curve (the construction of Lorenz curve, 2010:5) and defined mathematically thus:

The Kakwani index (**K**) = Concentration coefficient of direct payment – Gini coefficient

The comparison of the Lorenz curve and the concentration curves provides an indication of the extent of inequity. If payments were levied strictly in proportion to income (that is, distributed across income groups in proportion to their share of total income), the payment concentration curve and the Lorenz curve would coincide and $K = 0$. If those in the lower income groups spent more than their total income share and those in higher income groups spent less than their share (regressive payment system), the direct payment concentration curve will lie above the Lorenz curve and $K < 1$. The opposite is true if the payments rise with income (progressive payment system) and $k > 1$ (Mastilica and Božikov 1999:154; The construction of Lorenz curve 2010:2).

3.4.2.4 Multivariate analysis

According to Babbie and Mouton (2004:466), multiple regression analysis provides a means of analysing how several independent variables (stratifiers defined in Table 3.3) simultaneously affect a given dependent variable (maternal healthcare service utilization as defined in Table 3.4). Although the bivariate analysis described in the previous section explored the relationship between selected stratifier (independent variable) and the dependent variables, in reality, more than one independent variable operates to influence the utilization of maternal healthcare services. As such, an analysis that incorporated the effect of more than one independent variable on maternal healthcare service utilization at a time was done using multiple regression analysis (Kistiana 2009: 53).

Table 3.5: Classification of Variables in Logistics Regression Analysis and their Respective Values

Variable	Value
Outcome Variables	
Contraceptive services	0 = Used modern contraceptive methods
	1 = Did not use modern contraceptive methods
ANC service	0 = Received ANC from medical skilled providers
	1 = Did not receive ANC from medical skilled providers
Delivery care	0 = Had skilled attendants at birth
	1 = Did not have skilled attendants at birth
PNC Services	0 = Received PNC from medical personnel
	1 = Did not receive PNC from medical personnel
Exposure Variables	
Age	1 = Adolescent (less than 20 years)
	2 = Young Adult (20 – 34 years)
	3 = Adult (35 years and above)
Education	0 = None / Primary education (inclusive of did not complete primary education)
	1 = Secondary education (inclusive of did not complete secondary education)
	2 = Post-secondary education
Birth Order	1 = One
	2 = More than one
Residence	0 = Rural
	1 = Urban
Income Group	1 = Lower
	2 = Average
	3 = Higher
Insurance Status	0 = Not Covered ('No)
	1 = Covered ('Yes)

Taking forward the binary outcomes established for the dependent variables in Table 3.4 and the multiple independent exposure groups, multiple logistics regression analysis (Kirkwood and Sterne 2003:189) was adopted for the multivariate analysis in this study. See Table 3.5 for the classification of the variables used for the logistic regression analysis in this study.

Logistic regression coefficient (β) and odds ratio (OR) were used in the determination of the association between the exposure and outcome variables (Kirkwood and Sterne 2003:197; Logistic regression [sa]:573). The logistic regression coefficient (β) indicated the direction of the relationship between the two variables (that is which factor increased the likelihood of utilization of maternal healthcare services or which factor reduced the likelihood of utilization of services). The odds ratios (OR) represented the change in the odds of being in one category of the outcome variable over the reference category (Logistic regression [sa]:574). The analysis also included the level of significance (p value) of each statistic

The equation for the logistic regression analysis used (Kirkwood and Sterne 2003:197) in this report is presented below thus:

$$\text{Log odds of outcome} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p$$

The quantity on the right side of the equation is the linear predictor of the log odds of the outcome (utilization of maternal healthcare services), given the particular values of the p exposure variables x_1 to x_p . The β s are the regression coefficient associated with the p exposure variables (β_1 is the coefficient on the first predictor variable; β_2 is the coefficient on the second predictor variable; and so on).

The overall significance of the model was tested with the model chi-square and level of significance (p value) derived from the likelihood of observing the actual data under the assumption that the model that was fitted in this analysis was accurate (Logistic regression [sa]:579). The analysis tested two hypotheses in relation to the overall fitness of the model: the Null hypothesis (H_0) that the model is a good fitting model and the Alternate hypothesis (H_1) that the model is not a good fitting model (i.e. the predictors have significant effect).

The interpretation of data for each predictor was based on the Null Hypothesis (H_0) that exposure effect was zero for the different categories interpreted (where $p < 0.05$). An index of the significance of each predictor presented in Chapter 4 was based on the Wald statistics together with the associated probabilities (Logistic regression [sa]:581). The exponential β presented the extent to which raising the corresponding measure by one unit influenced the odds ratio (Logistic regression [sa]:582). Where the hypothesis was true, $\log OR = 0$ and $OR = 1$, depicting that the use of maternal healthcare services was not different from the relationship in the reference category. If the estimated $OR > 1$, the likelihood of using maternal healthcare services was interpreted to be higher relative to the reference category; and lower if $OR < 1$.

3.5 MEASURES TO ASSURE RELIABILITY AND VALIDITY

Reliability refers to accuracy and precision of a measurement procedure (Cooper and Schindler 2003:231). It (reliability) refers to whether a particular test or technique if applied repeatedly yields consistent result (Babbie and Mouton 2004:119; Patten 2002:65). Validity on the other hand refers to the extent to which a test measures what it is actually intended to measure (Cooper and Schindler 2003:231). According to Babbie and Mouton (2004:122) validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. In this sub-section, the measures to assure the reliability and validity of the data collection exercise were discussed.

3.5.1 Reliability

Reliability is concerned with the estimates of the degree to which a measurement is free of random or unstable error (Cooper and Schindler 2003:236). The reliability of the data collection exercise in this research as it relates to investigator consistency, standardized condition under which measurement occurred; relevance of the study to research subjects and the measuring instruments are discussed below.

3.5.1.1 Investigator consistency

According to Babbie and Mouton (2004:120), survey researchers have known that because of their attitudes and demeanors, interviewers get different answers from

respondents. As such, improving investigators' consistency by using only well-trained and experienced data collection personnel for the research (Cooper and Schindler 2003:239) as was done in this study was essential to assure reliability. Specifically, all the data collection personnel in this study were oriented to the research instrument to build consensus on the terms and issues that require clarification in this study.

3.5.1.2 Standardized condition under which measurement occurred

According to Cooper and Schindler (2003:239), a standardized condition under which measurement occurred is one of the measures for improving reliability. In this study, all the research participants were interviewed at the ANC clinic where they were registered. This standardized condition under which the interview took place potentially limit the influence of external environmental factor on the respondents.

3.5.1.3 Relevance of the study to research subjects

The relevance of the different maternal healthcare services to pregnant women of different SEC was discussed in Chapter 2 of this report to establish the relevance of the purpose of the research to the study population. According to Babbie and Mouton (2004:121), asking respondents about things that are relevant to them contributes to the reliability of the measurement, and this was done in this study. Towards assuring the relevance of this study to research subjects, women with past pregnancy history (parity of two or more) who were likely to have experience the full course of maternal healthcare services from pre-conception to post natal period were included in this study (as discussed earlier in section 3.3.1.1).

3.5.1.4 The measurement instrument

According to Babbie and Mouton (2004:121), the questions asked in the research instrument must be comprehensible to ensure reliability of the measure. As discussed in sub-section 3.3, the research questionnaire was pilot-tested among pregnant women attending ANC in another Area Council in Abuja, and appropriate modifications made to the instrument for ease of comprehension. The research instrument was administered in either English or Hausa language (based on the preference of the respondent) for ease of comprehension by the research participants. In addition, established measures as

discussed earlier in this chapter were used in the research instrument. This measure also contributed to the reliability of the research instrument (Babbie and Mouton 2004:122).

3.5.2 Validity

Validity refers to the extent to which a test measures what we actually wish to measure (Araoye 2003:150; Cooper and Schindler 2003:231). There are two major forms of validity – internal validity and external validity (Cooper and Schindler 2003:231). Internal validity refers to the ability of the study to measure what it sets out to measure (Araoye 2003:151). External validity on the other hand refers to the ability of the data to be generalized across persons, settings and time (Araoye 2003:151; Cooper and Schindler 2003:231).

Measures to control for internal validity were not addressed in this study due to the descriptive nature of the research design (UNISA 2005:16). Rather the discussion in this sub-section was limited to the validity of the survey instruments and external validity.

3.5.2.1 Validity of the survey instrument

The instrument for this survey was informed by the conceptual framework for this study and based on the guidelines for questionnaire construction to assure the validity of the instrument (Araoye 2003:134; Babbie and Mouton 2004:230). The measures to assure validity of the survey instrument discussed in this report included steps taken to assure face validity and content validity of the instrument.

3.5.2.1.1 Face validity

The perception of relevance of a measurement by the investigator is referred to as face validity (Araoye 2003:151; Patten 2002:55). In the view of the researcher, the face validity of the research instrument lied in the fact that the question items were derived from existing questionnaires which were administered on Nigerian women in earlier studies. In addition, subject matter experts both in Nigeria and in the **University of South Africa** (UNISA) reviewed the research instrument for face validity confirmation.

3.5.2.1.2 Content validity

The content validity of a measuring instrument is the extent to which it provides adequate coverage of the investigative questions in the study (Cooper and Schindler 2003:231-2). Thus, it includes the examination of whether all the component elements of a complex variable like socio-economic status and maternal health benefit were measured (Araoye 2003: 153; Babbie and Mouton 2004:123). In this study, the researcher based the questionnaire design on the conceptual framework for the study. In addition, the different socioeconomic characteristics of women and the different organizational levels of maternal healthcare services (discussed in Chapter 2) were explored to measure the socioeconomic factors that contribute to the exclusion of women from maternal health benefits.

The content validity of the instrument was further assured by the fact that the original instrument was developed by experts in the **National Population Commission (NPC)** in Nigeria with technical support from ICF Macro in the United States of America for the demographic and health survey in Nigeria (NPC 2009:527–599). In addition, the instrument was reviewed with the research supervisor, and cleared by FHREC (see Annex C) and **Health Studies Higher Degree Committee (HSHDC)** of the College of Human Science of the University of South Africa (see Annex D) for relevance, appropriateness and adequacy of items in each section prior to application for data collection in this study.

3.5.2.2 External validity

In Section 3.3.1, the sampling approach in this study was described. Specifically the probability sampling technique in subject selection as well as the calculation of large sample size for this study contributed to the external validity (Araoye 2003:151; Cooper and Schindler 2003:231). Other measures to assure external validity in this study included the design of the questionnaire based on rules for questionnaire construction, pre-testing of the instrument and ethical rigor especially on assuring anonymity.

3.6 CONCLUSION

The research design and methodology for the study of socioeconomic factors contributing to exclusion of women from maternal health benefits in AMAC, Abuja Nigeria were

discussed in this chapter. An empirical health facility-based cross-sectional survey design was employed for the study. The description of the probability sampling approach and the research instrument were included in this chapter. Measures to assure compliance with scientific ethics as well as control for the reliability and validity of the study were described.

This chapter also included a detailed description of the process of data collection, data collation, analysis and management. The next chapter of this report was informed by the data analysis described above, and included presentation and discussion of the findings of this study.

CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

The findings of the study of the socio-economic factors contributing to the exclusion of women from maternal health benefits in AMAC, Abuja Nigeria were presented and discussed in this chapter. The presentation of the findings included tables and charts based on data analysis description in Chapter 3. A discussion of the technical analysis of the findings of the research in relation to existing information and trends on the determinants of maternal healthcare service utilization both in Nigeria and beyond were also included in this chapter.

The presentation and discussion of the research findings in this chapter included background characteristics of the respondents and the description of the utilization of maternal healthcare services among respondents with different SEC. The description of inequality in the utilization of the maternal healthcare services and how the different socio-economic characteristics of the women influenced the utilization of maternal healthcare services based on the findings of the research were also included in the chapter.

4.2 BACKGROUND CHARACTERISTICS OF RESPONDENTS

There were 384 respondents from the five health facilities included in the study who participated in this study. Table 4.1 presents the distribution of the respondents by selected socio-demographic characteristics.

Regarding the age of the respondents, 77% (N = 384) were young adults aged 20 – 34 years, 19% (N = 384) were adult aged 35 years and older and 4% (N = 384) were adolescents less than 20 years. As at the time of this survey, 66% (N = 384) of the respondents had completed post-secondary education, 87% (N = 384) were married and 86% (N = 384) lived in urban area during their last pregnancy (Table 4.1).

Table 4.1: Socio-Demographic Characteristics of the Respondents (N = 384)

Characteristics	Distribution	Percentage
Age		
Adolescent (less than 20 years)	16	4.2
Young Adult (20 – 34 years)	295	76.8
Adult (35 and older)	73	19.0
Highest Educational Level		
None / Primary	25	6.5
Secondary	107	27.9
Post-Secondary Education	252	65.6
Marital Status		
Single	35	9.1
Married	333	86.7
Divorced	3	0.8
Widow	13	3.4
Number of Children of Respondents		
None	87	22.7
1 – 2 Children	182	47.4
3 – 4 Children	102	26.6
5 Children or More	13	3.4
Location where Respondent Lived during the last Pregnancy		
Urban	331	86.2
Rural	53	13.8
Ethnic Group of Respondents		
Hausa	122	31.8
Ibo	111	28.9
Yoruba	93	24.2
Others	58	15.1

Among the respondents, 47% (N = 384) had 1 to 2 children, 27% (N = 384) had 3 to 4 children and 23% (N = 384) had no child.

Considering the fact that Abuja, the Federal Capital Territory of Nigeria is metropolitan, it was consistent for the respondents to be almost equally distributed among the three major ethnic groups (Hausa, Ibo and Yoruba) in Nigeria. About a third – 32% (N = 384) of the respondents were Hausa, 29% (N = 384) were Ibo and 24% (N = 384) were Yoruba.

As illustrated in Figure 4.1, the religious affiliation of a majority of the pregnant women who participated in this study was christianity of which 24% (N = 384) were catholics and 44% (N = 384) were classified as other christians like pentecostal christians. The religious affiliation of about a third – 29% (N = 384) of the respondents was Islam.

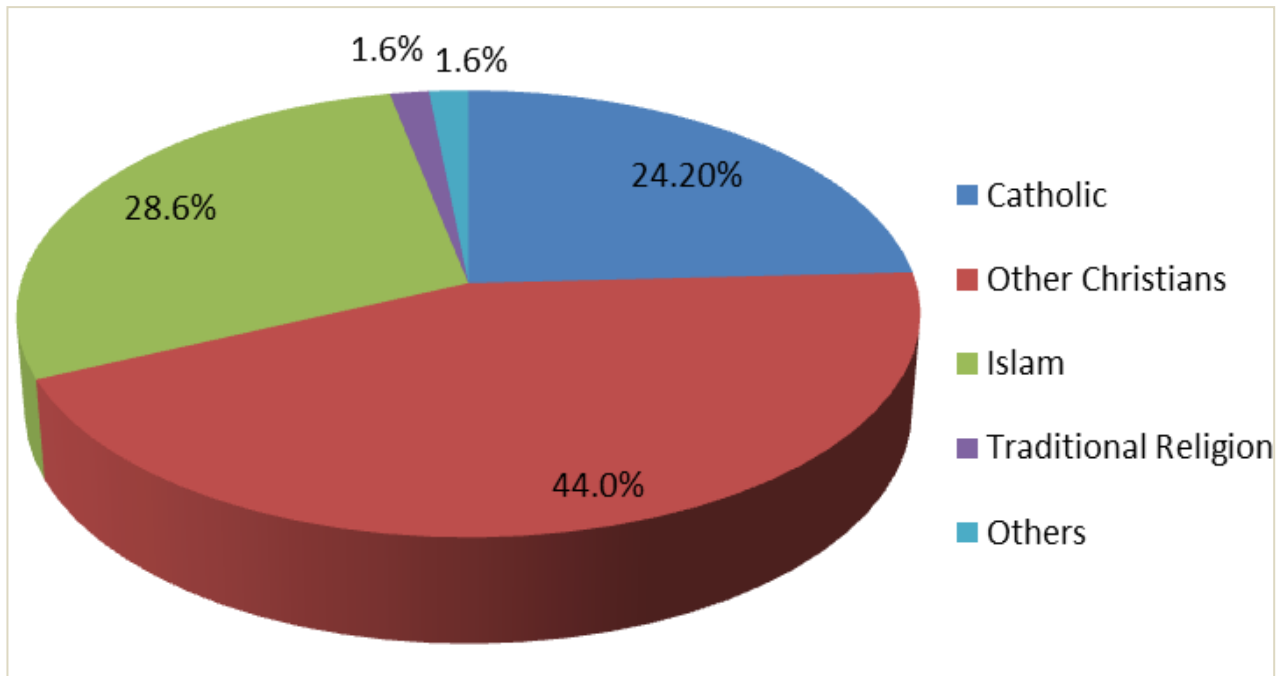


Figure 4.1: Chart of the Percentage Distribution of Respondents by Religious Affiliation (N = 384)

Table 4.2 presents the employment history of the respondents within 24 months of the survey. Among the respondents, 18% (N = 384) were unemployed, 31% (N = 384) worked in sales and services industry and 24% (N = 384) worked as professional or in technical or managerial roles. About one in ten – 9% (N = 384) of the respondents worked in skilled manual jobs and 7% (N = 384) had clerical jobs.

Table 4.2: Employment History of Respondents within 24 Months of the Survey (N = 384)

Type of Employment	Percentage
Professional / Technical / Managerial	23.7
Clerical Job	7.0
Sales and Services	31.3
Skilled Manual Job	9.4
Unskilled Manual Job	2.9
Agricultural	1.6
Housewife	4.7
Others (Buying, Selling, Teaching, Trading)	1.6
None (Not Working)	17.8

Table 4.3: Characteristics of the Annual Income of the Respondents (N = 384)

Characteristics	Value
Coefficient of Skewness	1.414
Standard Error of Skewness	0.125
Coefficient of Kurtosis	0.746
Standard Error of Kurtosis	0.248
Median	Naira 699,996.00
Range	Naira 11,370,000.00
Minimum	Naira 30,000.00
Maximum	Naira 1,140,000.00

The characteristics of the annual income of the respondents are presented in Table 4.3. The annual household income of the respondents ranged from Naira 30,000 to Naira 11,400,000 depicting a wide range between the two extremes of household income. Guided by Kirkwood and Sterne (2003:110), the distribution of annual household income of the respondents was asymmetrical, the income distribution were right-skewed (coefficient

of skewness = 1.414) and less spread out than normal distribution (coefficient of kurtosis = 0.746). The median annual household income was Naira 699,996.00.

As discussed in Chapter 3, the range was used to categorize the respondents into three income groups (Table 4.4). Based on the income grouping, 74% (N = 384) of the respondents were categorized into the lower income group, 12% (N = 384) in the average groups and 14% (N = 384) in the higher income group.

Table 4.4: Income Classification of Respondents (N = 384)

Income Quintile	Distribution	Percentage
Lower	285	74.2
Average	44	11.5
Higher	55	14.3

The number of children reported by the respondents ranged from no child to 5 or more children (Table 4.1). Among the respondents, 60% (N = 384) reported they had two or more births as at the time of their last pregnancy- this proportion included 44% (N = 384) of respondents who reported they had 2 to 4 births and 16% (N = 384) with more than 4 births as at last pregnancy (see Table 4.5).

Table 4.5: Pregnancy History and Birth Order of Respondents (N = 384)

Characteristics	Distribution	Percentage
Timing of Last Pregnancy as at the time of the Survey		
Less than 1 year ago	35	9.1
1 to 2 years ago	189	49.2
3 to 4 years ago	61	15.9
More than 4 years ago	99	25.8
Number of Births by Respondents including last pregnancy (Birth Order)		
1	153	39.8
2 or More	231	60.2

In relation to the timing of the last pregnancy, 49% (N = 384) of the women reported their last pregnancy was 1 to 2 years before the survey; 16% (N = 384) stated their last pregnancy was 3 to 4 years prior to the survey and 26% (N = 384) reported their last pregnancy was more than 4 years prior to the survey (Table 4.5).

The background characteristics of the respondents explored in this survey included health insurance coverage for maternal healthcare services. Overall, 23.7% (N = 384) of the respondents reported they were covered by health insurance.

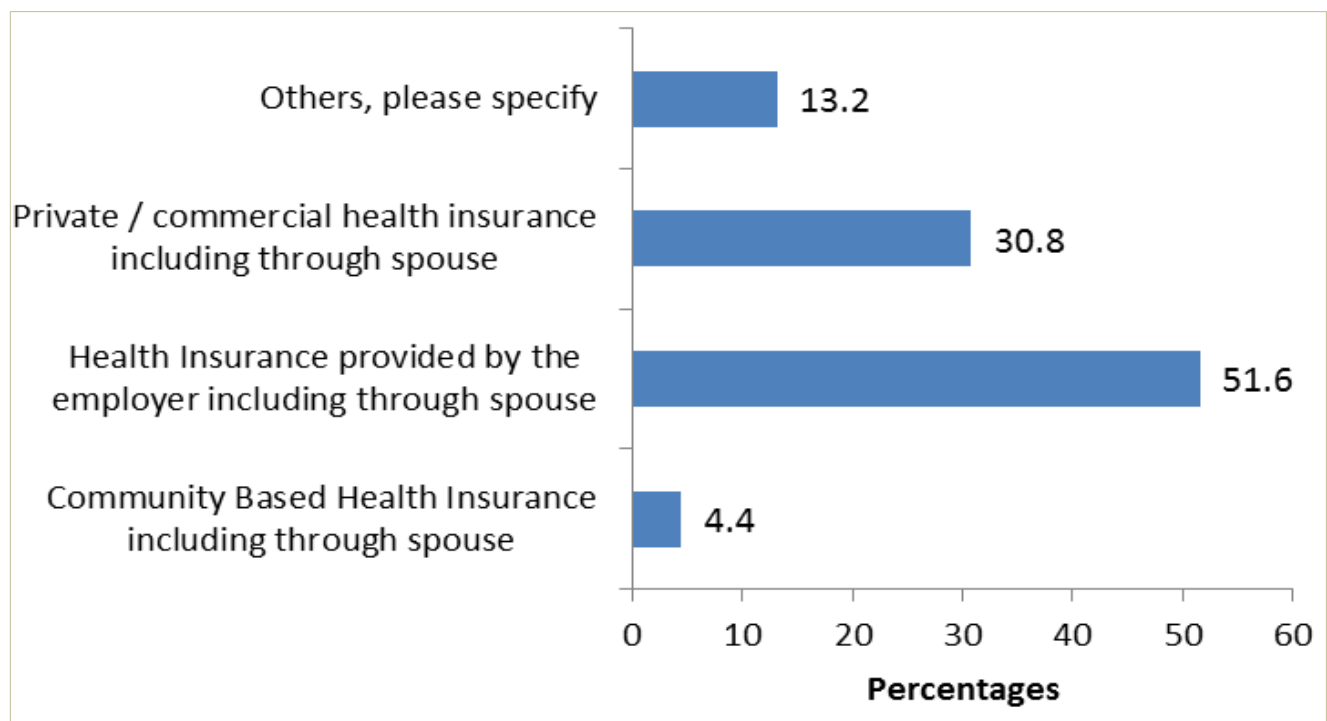


Figure 4.2: Chart of Type of Health Insurance among Respondents (n = 91)

Among the respondents who were covered by health insurance, 52% (n = 91) reported they were covered by public health insurance from their employer including the employer of their spouses, and 31% (n = 91) were covered by private / commercial health insurance (31%). Less than one in twenty respondents (4%, n = 91) were covered by community-based health insurance scheme. See Figure 4.2.

4.3 DESCRIPTION OF UTILIZATION OF MATERNAL HEALTHCARE SERVICES AMONG RESPONDENTS

The presentation and discussion of the utilization of maternal healthcare services among pregnant women of different SEC in this section was guided by the conceptual framework for this study. The presentation included description of contraceptive services, ANC services, delivery care services and PNC services among the respondents.

4.3.1 Contraceptive services among respondents

The description of contraceptive services in this report included the knowledge and reported usage of contraceptive methods among respondents.

4.3.1.1 Knowledge of contraceptive methods

Among the respondents, 79.9% (N = 384) reported they had ever heard of contraceptive methods. This rate was higher than the 64% of women aged 15 – 49 years in North-Central geopolitical zone of Nigeria (where Abuja is located) who reported they had ever heard of contraceptive methods in the 2008 NDHS (NPC 2009:65).

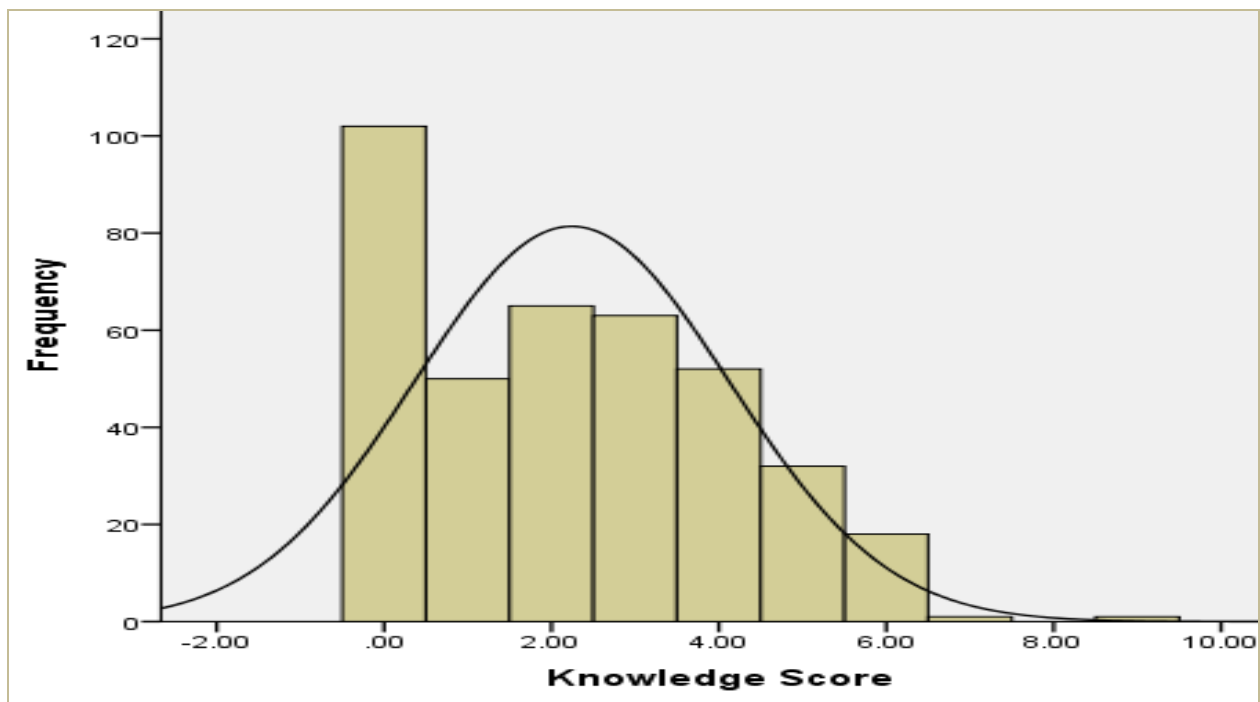


Figure 4.3: Distribution Curve of Knowledge of Contraceptive Methods among Respondents (N = 384)

As described in Section 3.4, the maximum score of the knowledge of contraceptive methods was calculated and the normal curve of knowledge of contraceptive methods among respondents was plotted in Figure 4.3. Out of a total score of 13, the mean score for knowledge of contraceptive methods among respondents was 2.24 (s.d = ± 1.88). The distribution curve of the contraceptive knowledge score of the respondents is presented in figure 4.3. In line with the category of knowledge described in Chapter 3 of this report, 60% (N = 384) of the respondents had average knowledge of contraceptive methods, 27% (N = 384) had poor knowledge and only 14% (N = 384) had good knowledge of contraceptive methods (Table 4.6).

The level of knowledge of contraceptive methods varied among the respondents across different background characteristics as presented in Table 4.6. Across age category, 15% (n = 295) of the respondents aged 20 – 34 years had good knowledge of contraceptive methods compared to 10% (n = 73) of those aged 35 years and above. None of the adolescent respondents (aged less than 20 years) had good knowledge of contraceptive methods. There was a statistically significant relationship between the level of knowledge of contraceptive methods and the age category of the respondents ($p = 0.002$).

Regarding education level, there were an increasing proportion of respondents with higher education level that had good knowledge of contraceptive methods. Specifically, 18% (n = 252) of respondent with post-secondary education and 6% (n = 107) of those with secondary education compared with 4% (n = 25) among those with no or primary education had good knowledge of contraceptive methods (Table 4.6). A statistically significant relationship was established between the knowledge of contraceptive methods and the education level of the respondents ($p \text{ value} = 0.000$).

Table 4.6: Percentage of Respondents with Knowledge of Contraceptive Methods by Background Characteristics (N = 384)

Background Characteristics	Knowledge Category (Percentage)			Chi-square	p - value
	Poor	Average	Good		
Maternal Age					
less than 20 years (<i>n</i> = 16)	68.8	31.2	0.0	17.340	0.002
20 – 34 years (<i>n</i> = 295)	24.4	60.3	15.3		
35 years and above (<i>n</i> = 73)	26.0	64.4	9.6		
Education					
None / Primary (<i>n</i> = 25)	56.0	40.0	4.0	78.416	0.000
Secondary (<i>n</i> = 107)	53.3	41.1	5.6		
Post-Secondary (<i>n</i> = 252)	12.3	69.8	17.9		
Marital Status					
Single (<i>n</i> = 35)	42.9	51.4	5.7	14.728	0.022
Married (<i>n</i> = 333)	24.0	61.0	15.0		
Divorced (<i>n</i> = 3)	0.0	100.0	0.0		
Widow (<i>n</i> = 13)	53.8	46.2	0.0		
Birth Order					
Once (<i>n</i> = 153)	24.8	63.4	11.8	1.399	0.497
More than Once (<i>n</i> = 231)	27.7	57.6	14.7		
Location of Residence during the last Pregnancy					
Urban (<i>n</i> = 331)	21.1	63.4	15.4	37.677	0.000
Rural (<i>n</i> = 53)	60.4	37.7	1.9		
Income Group					
Lower (<i>n</i> = 285)	29.8	60.4	9.8	16.718	0.002
Average (<i>n</i> = 44)	18.2	61.4	20.5		
Higher (<i>n</i> = 55)	16.4	56.4	27.3		
Total (Percent)	26.6	59.9	13.5		

As presented in Table 4.6, a higher proportion of married women (15%, *n* = 333) compared to 6% (*n* = 35) of women who were single had good knowledge of contraceptive methods. Likewise, 15% (*n* = 331) of respondents that were resident in urban areas during their last pregnancy compared to 2% (*n* = 53) of those who lived in rural areas had good

knowledge of contraceptive methods. Statistically significant relationships were established between level of knowledge of contraceptive methods and marital status (p value = 0.022) as well as the location of residence (p value = 0.000) of the respondents.

Across income groups, an increasing proportion of respondent along increasing income levels had good knowledge of contraceptive methods. Specifically, 10% (n = 285) of those in lower income group, 21% (n = 44) of those in the average income group and 27% (n = 55) of those in higher income group had good knowledge of contraceptive methods. The relationship between level of knowledge of contraceptive methods and household income of the respondents was statistically significant (p value = 0.018).

Unlike the other background characteristics of the respondents included in this analysis, there was no statistically significant relationship between the level of knowledge of contraceptive methods and birth order of the respondents (p value = 0.497), though 12% (n = 153) and 15% (n = 231) of the respondents who had experienced one birth and those with more than one birth respective had good knowledge of contraceptive methods.

4.3.1.2 Reported experience of ever usage of contraceptive methods

About half - 52.3% (N = 384) of all the respondents in this study translating into 201 pregnant women reported they had ever used contraceptive methods. Considering the metropolitan nature of AMAC, it was consistent that the rate in this study was higher than rates reported in earlier studies. During the period covered by the 2011 MICS, 39% of currently married women or those in union in Abuja reported they used contraceptive method (NBS 2013:129). The 2013 NDHS reported that 25% of currently married women in Abuja had ever used any contraceptive method (NPC 2013:15).

Among the different contraceptive methods included in this study, all the 201 respondents who had ever used contraceptive methods in this study reported they had used **Lactational Amenorrhea (LAM)**, 76% (n = 201) reported they had used contraceptive pills and 68% (n = 201) reported they used male condom (Figure 4.4). Pharmaceutical store was the location where 71% (n = 201) of the respondents who had ever used contraceptives procured the commodities / service (Figure 4.5).

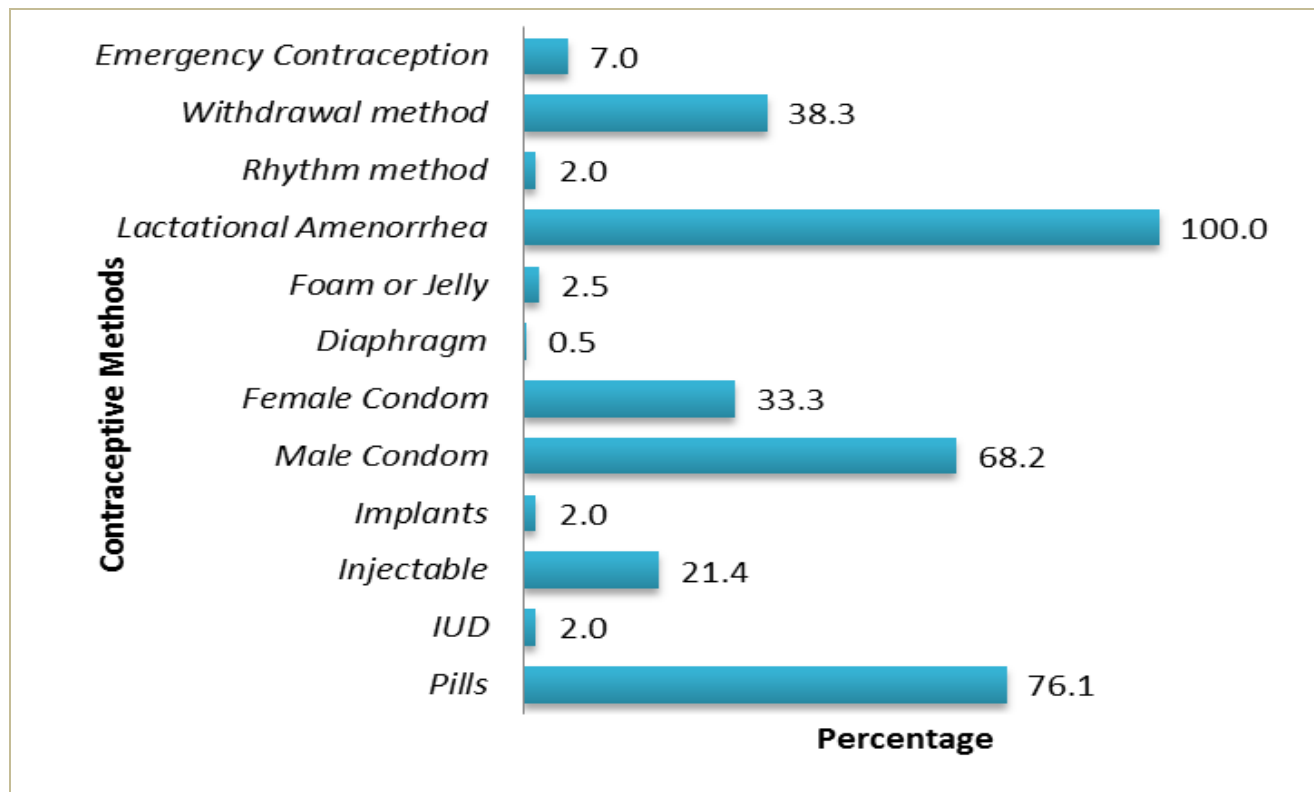


Figure 4.4: Chart of Percentage of Respondents by Contraceptive Methods Ever Used (n = 201)

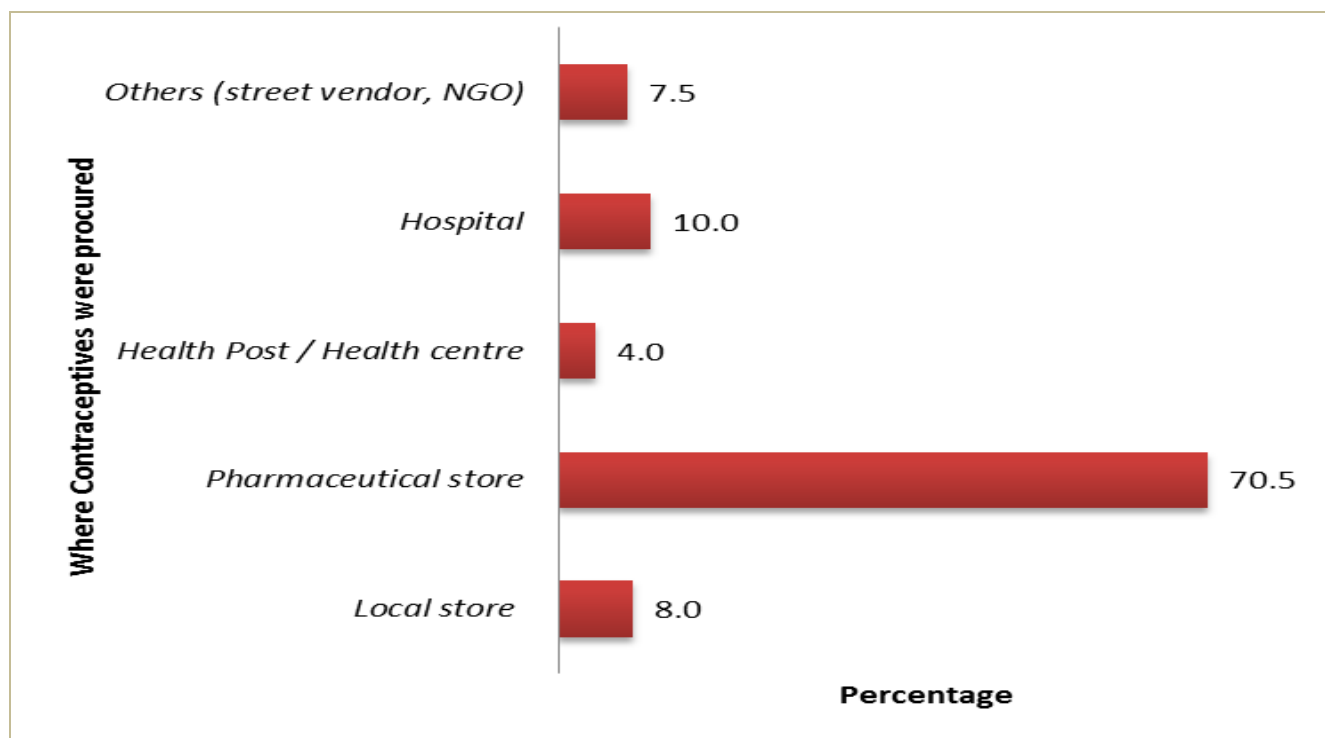


Figure 4.5: Chart of Percentage of Respondents by Location where Contraceptive Methods was Procured (n = 201)

4.3.2 Antenatal care services among respondents

The use of ANC services during the last pregnancy differs among respondents with different background characteristics (Table 4.7).

Table 4.7: Percentage of Respondents who used ANC Services (from any provider) during their last pregnancy by Background Characteristics (n = 291)

Background Characteristics	Ever Used ANC	
	Distribution	Percentage
Maternal Age		
Less than 20 years	2	0.7
20 – 34 years	233	80.1
35 years and above	56	19.2
Education		
None / Primary	14	4.8
Secondary	72	24.7
Post-Secondary	205	70.4
Marital Status		
Single	11	3.8
Married	265	91.1
Divorced	3	1.0
Widow	12	4.1
Birth Order		
Once	81	27.8
More than Once	210	72.2
Location of Residence during the last Pregnancy		
Urban	254	87.3
Rural	37	12.7
Income Group		
Lower	213	73.2
Average	32	11.0
Higher	46	15.8
Total (Percent)	291	100.0

Overall, 76% (N = 384) of the respondents in this study (translating into 291 pregnant women) reported they used ANC services (from any provider) during their last pregnancy. This finding was consistent with the 73.4% of women who reported they used ANC services from any provider in North-Central Nigeria (NPC 2009:126) but lower than the 94% reported among respondents in Abuja in the 2011 MICS (NBS 2013:136).

Across the different background characteristics presented in Table 4.7, 91% (n = 291) of the respondents in this study who used ANC services during their last pregnancy were married; 87% (n = 291) lived in urban settings and 80% (n = 291) were aged 20 – 34 years. The majorities of the respondent that used ANC services during their last pregnancy were also in the lower income group (73%, n = 291), had experienced more than one births (72%, n = 291) and had post-secondary education (70%, n = 291). The pattern of socio-economic differentials reported in this study were consistent with earlier findings with regards to maternal age, maternal education, wealth index quintile and location of residence of respondents in the 2011 MICS (NBS 2013:137)

Consistent with the findings among women in Abuja in NBS (2013:136), a higher proportion of the respondents in this study received ANC services from doctors compared to those who received the service from nurse/midwife. Specifically, 61% (n = 291) of the respondents in this study reported they received ANC services from doctor and 35% (n = 291) from nurse / midwife (Table 4.8). In the 2011 MICS (NBS 2013:136), 64% of the respondents in Abuja received ANC services from doctors and 27% received ANC from nurse / midwife.

Consistent with the high proportion of respondents that received ANC services from doctor and nurse / midwife, 68% (n = 291) of the women reported they received ANC services from public health facilities and 30% (n = 291) from private hospitals. More than three quarter - 77% (n = 291) of the respondents who used ANC services stated they were satisfied with the services received during their last pregnancy (See Table 4.8).

Table 4.8: Percentage of Respondents who Ever Used ANC by Service Provider, Facility and Satisfaction Level (n = 291)

Characteristics	Percentage
Service Provider	
Doctor	60.8
Nurse / Midwife	35.4
Auxiliary Nurse	1.7
TBA / Others	2.1
Facility	
Home	1.8
Public Health Facilities	67.7
Private Hospitals	30.2
Others like TBA	0.3
Satisfaction Level	
Satisfied	76.6
Average	21.7
Not Satisfied	1.7

4.3.3 Delivery care and post natal care services among respondents

Among the respondents, about two thirds – 66.7% (N = 384) reported they carried their last pregnancy to term. As presented in Table 4.9, more than half - 52% (n = 256) of the women who carried their last pregnancy to term reported they received delivery care services from doctor, 44% (n = 256) from nurse / midwife and 3% (n = 249) from TBA. These findings were at variance with reported rates in Abuja in the 2011 MICS where 28% of respondents (in Abuja) received delivery services from doctors, 48% from nurse / midwife and 5% from TBA (NBS 2013:144).

Almost two thirds - 62% (n = 256) of the women were delivered in public health facilities and 33% (n = 256) in private hospitals. A few of the respondents – 2% (n = 256) were delivered of their last pregnancy at home and another 2% (n = 256) in other places managed by other providers like TBA. These findings indicated that lower proportion of respondents in this study utilized home delivery when compared to earlier studies. The

2008 NDHS reported that 57% of women in North-Central Nigeria had home deliveries during the period covered by the survey (NPC 2009:132), while MICS 2011 reported that 24% of women in Abuja reported home delivered during the two years preceding the survey (NBS 2013:147).

Table 4.9: Percentage of Respondents who delivered their last pregnancy at term by Service Provider, Facility and Satisfaction Level (n = 256)

Characteristics	Percentage
Service Provider	
Doctor	51.6
Nurse / Midwife	43.8
Auxiliary Nurse	1.2
TBA / Others	3.4
Facility	
Home	2.4
Public Health Facilities	62.0
Private Hospitals	33.3
Others like TBA	2.3
Satisfaction Level	
Satisfied	70.7
Average	25.8
Not Satisfied	3.5

Considering the high proportion of institutional deliveries in this study, a satisfactory level of delivery care reported by 71% (n = 256) of the respondents who carried their last pregnancy to term was consistent (Table 4.9)

After the delivery of the last pregnancy, 249 respondents reported they received post natal care services from any provider. Among those who received PNC, 72% (n = 249) reported they received the service from doctor and 25% (n = 249) from nurse / midwife (Table 4.10). A lower proportion (42%) of women in North-Central Nigeria utilized PNC services during the period covered by the 2008 NDHS (NPC 2009:136). In relation to the timing of PNC

services received, 51% (n = 249) of the respondents received PNC services within 24 hours of birth and 27% (n = 249) received PNC services within 1 to 3 days after birth. See Table 4.10.

Table 4.10: Percentage of Respondents who Received PNC after their last Delivery by Service Provider and Timing of Service (n = 249)

Characteristics	Percentage
Service Provider	
Doctor	72.3
Nurse / Midwife	24.9
Auxiliary Nurse	0.8
TBA / Others	2.0
Timing of PNC Check Up	
Less than 24 hours	50.6
1 to 3 Days	26.9
4 to 7 Days	11.6
More than 1 week	10.9

4.4 DETERMINANTS OF QUALITY MATERNAL HEALTHCARE SERVICES UTILIZATION AMONG RESPONDENTS

This section examined the relationship between quality maternal healthcare service utilization and selected background characteristics of the respondents. The results discussed in this section were informed by the bivariate analysis.

4.4.1 Quality maternal healthcare services utilization among respondents

Table 4.11 presents the distribution of the respondents that utilized quality maternal healthcare services as conceptualized in Chapter 3 (Table 3.4) of this report. During the last pregnancy of the respondents, 77% (N = 384) utilized ANC from medical skilled provider; 65% (N = 384) had skilled attendant at birth and 64% (N = 384) received PNC

from medical personnel. The use of modern contraceptive methods was reported by 52% (N = 384) of the respondents.

Table 4.11: Classification of Respondents by Receipt of Quality Maternal Healthcare Services Utilized (N = 384)

Maternal Health Service	Frequency	Percentage
Contraceptive Services		
Used modern contraceptive methods	199	51.8
Did not use modern contraceptive methods	185	48.2
Ante-Natal Care Service		
Received ANC from medical skilled providers	295	76.8
Did not receive ANC from medical skilled providers	89	23.2
Delivery Care Services		
Received skilled attendants at birth	249	64.8
Did receive skilled attendants at birth	135	35.2
Post Natal Care		
Received PNC from medical personnel	245	63.8
Did not receive PNC from medical personnel	139	36.2

While the reported proportion of respondents who had used each of the four quality maternal healthcare services reported in this study was higher than the corresponding rates reported (among women in North-Central Nigeria) during the period covered by the 2008 NDHS. The findings were however consistent (for ANC and delivery care) with reported rates among women of reproductive age group in Abuja in the 2011 MICS and the 2013 NDHS. During the period covered by the 2008 NDHS, 65% of women of reproductive age group in North-Central Nigeria reported they used ANC from medical skilled provider (NPC 2009:126) and 43% received skilled attendants at birth (NPC 2009: 134). Among women of reproductive age in Abuja, the 2013 NDHS (NPC 2013:22) reported that 89% and 70% of respondent used ANC from medical skilled providers and received skilled attendant at delivery respectively. Likewise, 91% of women of reproductive age groups in Abuja in the two years preceding the 2011 MICS reported the utilization of ANC from medical personnel (NBS 2013:136) and 78% received medical skilled personnel

at delivery (NBS 2013:144). The definition of indicators for measuring PNC services with quality in this report and the NDHS differ; as such the findings were not compared.

Regarding the use of modern contraceptive methods in earlier studies, 24% of sexually active women (nationally) reported they used contraceptive methods (NPC 2009:66) during the period covered by the 2008 NDHS. A similar proportion (21% in NPC 2013:15 and 25% in NBS 2013:129) of currently married women in Abuja reported the use of modern contraceptive method during the period covered by the two studies.

4.4.2 Relationship between quality maternal healthcare service utilization and socio-economic characteristics of respondents

4.4.2.1 Maternal age

Similar to the findings in earlier studies (Awusi et al 2009:22; Mekonnen and Mekonnen 2003:375), statistically significant relationships (Table 4.12) were established between maternal age and utilization of each of the four quality maternal healthcare services among respondents in this study. Compared to other age groups, the highest proportion of respondents who utilized each of the four quality maternal healthcare services were aged 20 -34 years. The lowest proportion of respondents who utilized the four maternal healthcare services were adolescents aged less than 20 years. The findings of this study (Table 4.12) were consistent with national reports for utilization of ANC from medical provider and receipt of skilled attendant at delivery (NBS 2013:137-145; NPC 2013:22) but contrary for the use of modern contraceptive methods among currently married women or those in union where the highest proportion were aged 35 – 44 years (NBS 2013:129; NPC 2013:15). A similar pattern of exclusion of adolescents from the use of family planning (contraceptive) services was reported among women in urban slum area of Kenya (Okech, Wawire and Mburu 2011:29). The definition of quality PNC services in this report differ from earlier studies, as such were not compared.

The low service utilization among adolescents further reinforced earlier argument in WHO (2011:12) that socio-economic inequities due to limited access to funds to pay for healthcare, requirement of parental consent to seek healthcare, societal exclusion due to

early marriage or sexual coercion; or discrimination by judgmental health workers at the point of seeking care faced by adolescent limits their access to maternal healthcare.

Table 4.12: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Age of Respondents (N = 384)

Maternal Healthcare Service	Age (Percentage)			Chi square	P value
	less than 20 years	20 – 34 years	35 years and older		
Contraceptive Services					
Used modern contraceptive methods (n = 199)	1.0	81.9	17.1	12.106	0.002
Did not use modern contraceptive methods (n = 185)	7.6	71.4	21.1		
Ante-Natal Care Service					
Received ANC from medical skilled providers (n = 295)	0.7	79.3	20.0	38.870	0.000
Did not receive ANC from medical skilled providers (n = 89)	15.7	68.6	15.7		
Delivery Care Services					
Received skilled attendants at birth (n = 249)	0.8	80.3	18.9	20.365	0.000
Did not receive skilled attendants at birth (n = 135)	10.4	70.4	19.3		
Post Natal Care					
Received PNC from medical personnel (n = 245)	0.8	81.2	18.0	20.334	0.000
Did not receive PNC from medical personnel (n = 139)	10.1	69.1	20.9		

4.4.2.2 Birth order

The relationship between birth order and utilization of quality maternal healthcare services in Table 4.13 indicated that the majorities of respondents who utilized the four quality maternal healthcare services had experienced more than one birth compared to those with birth order of one (limited birth experience). Although the number of births used as reference in this study differ from earlier studies, it is worthy to note that the finding of this study is at variance with the trend reported in Awusi et al (2009:23) and Mekonnen and Mekonnen (2003:375-6) where women with limited or no past experience related to pregnancy and child birth were reported to be more likely to seek ANC and professional

assistance at delivery. The pattern of usage of contraceptive services was however consistent with findings in Kenya among women in slum areas (Okech, Wawire and Mburu 2011:30) where the lowest proportion of women who reported the use of family planning (contraceptive) services were among those with no child.

Table 4.13: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Birth Order of Respondents (N = 384)

Maternal Healthcare Service	Birth Order (Percentage)		Chi square	P value
	One Birth	More than One Births		
Contraceptive Services				
Used modern contraceptive methods (<i>n</i> = 199)	38.2	61.8	0.471	0.493
Did not use modern contraceptive methods (<i>n</i> = 185)	41.6	58.4		
Ante-Natal Care Service				
Received ANC from medical skilled providers (<i>n</i> = 295)	28.5	71.5	68.640	0.000
Did not receive ANC from medical skilled providers (<i>n</i> = 89)	77.5	22.5		
Delivery Care Services				
Received skilled attendants at birth (<i>n</i> = 249)	31.7	68.3	19.468	0.000
Did not receive skilled attendants at birth (<i>n</i> = 135)	54.8	45.2		
Post Natal Care				
Received PNC from medical personnel (<i>n</i> = 245)	32.2	67.8	16.306	0.000
Did not receive PNC from medical personnel (<i>n</i> = 139)	53.2	46.8		

In Table 4.13, statistically significant relationships were established between birth order and use of ANC from skilled providers (p value = 0.000); receipt of skilled attendant at delivery (p value = 0.000) and receipt of PNC services from medical personnel (p value = 0.000). Although a higher proportion of respondents who used modern contraceptive methods had more than one birth (62%) compared to 38% of those with birth order of one, the relationship between birth order and use of modern contraceptive method was not statistically significant (p value = 0.493) in Table 4.13.

4.4.2.3 Maternal education

The proportion of respondents who used the four maternal healthcare services in this study (Table 4.14) increased along increasing level of education. These findings are consistent with earlier national reports in Nigeria with regards to the use of modern contraceptive methods (NBS 2013:130; NPC 2013:16) and Kenya (Okech, Wawire and Mburu 2011:30), receipt of ANC from a medical provider and delivery from skilled attendants (NBS 2013:137-145; NPC 2013:22).

Table 4.14: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Education Level of Respondents (N = 384)

Maternal Healthcare Service	Education Level (Percentage)			Chi square	P value
	None / Primary	Secondary	Post-Secondary		
Contraceptive Services					
Used modern contraceptive methods (n = 199)	2.0	16.6	81.4	47.394	0.000
Did not use modern contraceptive methods (n = 185)	11.4	40.0	48.6		
Ante-Natal Care Service					
Received ANC from medical skilled providers (n = 295)	5.1	26.8	68.1	5.734	0.057
Did not receive ANC from medical skilled providers (n = 89)	11.2	31.5	57.3		
Delivery Care Services					
Received skilled attendants at birth (n = 249)	4.4	25.7	69.9	7.906	0.019
Did not receive skilled attendants at birth (n = 135)	10.4	31.9	57.8		
Post Natal Care					
Received PNC from medical personnel (n = 245)	4.1	25.3	70.6	10.288	0.006
Did not receive PNC from medical personnel (n = 139)	10.8	32.4	56.8		

Consistent with the results from earlier studies (Adanu 2010:155; Avidime et al 2010:69; Butawa et al 2010:72; Mekonnen and Mekonnen 2003:376-8; Wirth et al 2006:523), statistically significant relationships were established between maternal education and the use of modern contraceptive methods (p value = 0.000), receipt of skilled attendant at last

delivery (p value = 0.019), and receipt of PNC services from medical personnel (p value = 0.006). Contrary to expectation however, there was no statistically significant relationship between education level and receipt of ANC services from skilled providers (p value = 0.057) during the last pregnancy of the respondents in this study (Table 4.14).

4.4.2.4 Location of residence

Overall, 95% (n = 199) of the respondents who used modern contraceptive methods lived in urban settings. Likewise, 86% (n = 295) of those that received ANC from medical skilled personnel, 88% (n = 249) of those that received skilled attendant at birth and 88% (n = 245) of those that received PNC services from medical personnel lived in urban setting during their last pregnancy (Table 4.15). These findings are consistent with earlier national reports in Nigeria (NBS 2013: 129 – 148; NPC 2013: 15 – 22) for the use of modern contraceptive methods, receipt of ANC from a medical provider and delivery from skilled attendants.

Table 4.15: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Location of Residence of Respondents (N = 384)

Maternal Healthcare Service	Location of Residence (Percentage)		Chi square	P value
	Urban	Rural		
Contraceptive Services				
Used modern contraceptive methods (n = 199)	94.5	5.5	23.771	0.000
Did not use modern contraceptive methods (n = 185)	77.3	22.7		
Ante-Natal Care Service				
Received ANC from medical skilled providers (n = 295)	86.1	13.9	0.010	0.921
Did not receive ANC from medical skilled providers (n = 89)	86.5	13.5		
Delivery Care Services				
Received skilled attendants at birth (n = 249)	88.0	12.0	1.831	0.176
Did not receive skilled attendants at birth (n = 135)	83.0	17.0		
Post Natal Care				
Received PNC from medical personnel (n = 245)	87.8	12.2	1.380	0.240
Did not receive PNC from medical personnel (n = 139)	83.5	16.5		

The differential in the utilization of maternal healthcare services in favour of women in urban areas (Table 4.15) were similar to the findings of earlier studies (Mekonnen and Mekonnen 2003:376-8; Say and Raine 2007:814; Zere et al 2010:5). However, only the relationship between location of residence of respondents and utilization of modern contraceptive methods was statistically significant (p value = 0.000) in this study.

Unlike the study from India where significant difference ($p < 0.01$) in favour of urban women was established for ANC utilization (Say and Raine 2007:815), statistically significant relationship was not established in this study between location of residence of respondents and utilization of ANC services from medical skilled providers (p value = 0.921). Likewise, statistically significant relationship was not established between location of residence of respondents and the receipt of skilled attendant at delivery (p value = 0.176) nor with receipt of PNC services from medical personnel (p value = 0.240). See Table 4.15.

4.4.2.5 Health insurance coverage

Overall, a lower proportion of respondents who utilized the four quality maternal healthcare services were covered by health insurance in this study (Table 4.16). These findings are consistent with the low coverage of health insurance in Nigeria discussed in Section 2.5. Specifically, insurance coverage was reported among 28% ($n = 199$) of respondents that used modern contraceptive methods; 26% ($n = 295$) of those that received ANC services from medical skilled provider; 30% ($n = 249$) of those who received skilled attendant at delivery; and 29% ($n = 245$) of those that received PNC services.

Statistically significant relationships were established in this study (Table 4.16) between coverage by health insurance and receipt of ANC from medical skilled providers (p value = 0.021), the receipt of skilled attendants at birth (p value = 0.000) and utilization of PNC services from medical personnel (p value = 0.000). However, the relationship between health insurance coverage and use of modern contraceptive methods among respondents was not statistically significant (p value = 0.060).

Table 4.16: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Health Insurance Coverage of Respondents (N = 384)

Maternal Healthcare Service	Insurance Coverage (Percentage)		Chi square	P value
	Covered	Not Covered		
Contraceptive Services				
Used modern contraceptive methods (<i>n</i> = 199)	27.6	72.4	3.547	0.060
Did not use modern contraceptive methods (<i>n</i> = 185)	19.5	80.5		
Ante-Natal Care Service				
Received ANC from medical skilled providers (<i>n</i> = 295)	26.4	73.6	5.295	0.021
Did not receive ANC from medical skilled providers (<i>n</i> = 89)	14.6	85.4		
Delivery Care Services				
Received skilled attendants at birth (<i>n</i> = 249)	29.7	70.3	14.200	0.000
Did not receive skilled attendants at birth (<i>n</i> = 135)	12.6	87.4		
Post Natal Care				
Received PNC from medical personnel (<i>n</i> = 245)	29.4	70.6	12.118	0.000
Did not receive PNC from medical personnel (<i>n</i> = 139)	13.7	86.3		

4.4.2.6 Household income

The findings of this study indicated that the majorities of the respondents who utilized the four quality maternal healthcare services were in the lower income grouping (Table 4.17). Unlike the report of the 2011 MICS (NBS 2013:130-145) where proportion of women who used modern contraceptive methods, received ANC from medical provider and received professional attendant at delivery increased along wealth quintile, this study did not establish a pattern on the utilization of maternal healthcare along the three income groups in this study. Across the four maternal healthcare services, the proportion of respondents in the average income group that used quality maternal healthcare services was lower than the proportion in the higher income group.

Table 4.17: Cross Tabulation of Quality Maternal Healthcare Service Utilization against Income Group of Respondents (N = 384)

Maternal Healthcare Service	Income Group (Percentage)			Chi square	P value
	Lower	Average	Higher		
Contraceptive Services					
Used modern contraceptive methods (<i>n</i> = 199)	68.3	13.1	18.6	8.112	0.017
Did not use modern contraceptive methods (<i>n</i> = 185)	80.5	9.7	9.7		
Ante-Natal Care Service					
Received ANC from medical skilled providers (<i>n</i> = 295)	73.9	10.5	15.6	2.454	0.294
Did not receive ANC from medical skilled providers (<i>n</i> = 89)	75.3	14.6	10.1		
Delivery Care Services					
Received skilled attendants at birth (<i>n</i> = 249)	71.9	10.8	17.3	5.045	0.080
Did not receive skilled attendants at birth (<i>n</i> = 135)	78.5	12.6	8.9		
Post Natal Care					
Received PNC from medical personnel (<i>n</i> = 245)	72.2	10.6	17.1	4.536	0.104
Did not receive PNC from medical personnel (<i>n</i> = 139)	77.7	12.9	9.4		

The utilization of modern contraceptive methods among the respondents in the different income groups was statistically significant (*p* value = 0.017). However, statistically significant relationship was not established between household income and the four maternal healthcare services: *p* value was 0.066 for contraceptive services; *p* value was 0.298 for ANC services; *p* value was 0.183 for delivery care and *p* value was 0.238 for PNC services. These findings might support the conclusion by Wilkinson (1996:593) that absolute income is unrelated to health.

4.5 MEASURE OF INEQUALITY IN MATERNAL HEALTHCARE SERVICES AMONG RESPONDENTS

The presentation and discussion of the measures of inequality in the utilization of maternal healthcare services as well as the payment method among respondents are presented in this section.

4.5.1 Inequality in the utilization of maternal healthcare services

As described in Chapter 3, the measure of inequality in the utilization of the maternal healthcare services in this study was the concentration index (O'Donnell et al 2008:95; Onwujekwe et al 2008:4; Wagstaff, Paci and Van Doorslaer 1991:548). Based on the concentration curves in Figures 4.6 to 4.9, utilization of quality maternal healthcare services in Abuja, Nigeria was higher among the rich compared to the poor. The concentration indexes for each of the four maternal healthcare services are presented in Table 4.18.

Table 4.18: Equity in Utilization of Quality Maternal Healthcare Service Utilization against Income Group of Respondents

Utilization of Maternal Health Service	Concentration Index (CI)
Used modern contraceptive methods	0.059
Received ANC from medical skilled providers	0.016
Received skilled attendants at birth	0.030
Received PNC from medical personnel	0.028

While the utilization of ANC services from medical skilled providers was almost equitable (CI = 0.02) between the rich and the poor, a wider inequality in favour of the rich was evident in the utilization of modern contraceptive methods (CI = 0.06) among the respondents. Likewise, inequality (CI = 0.03) in the utilization of skilled attendants at delivery and receipt of PNC from medical personnel was evident among the respondents (Table 4.18)

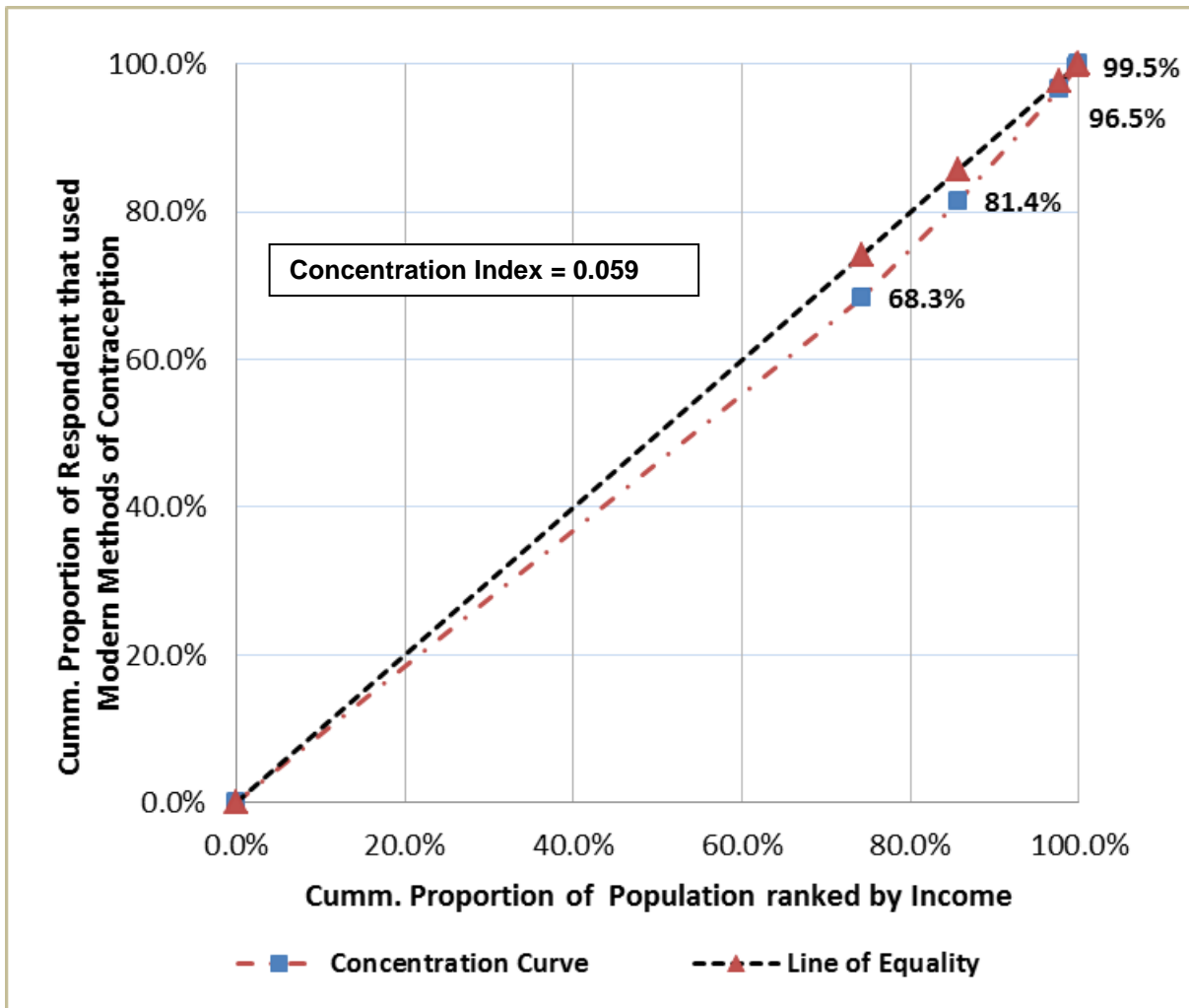


Figure 4.6: Concentration Curve of Utilization of Modern Contraceptive Method

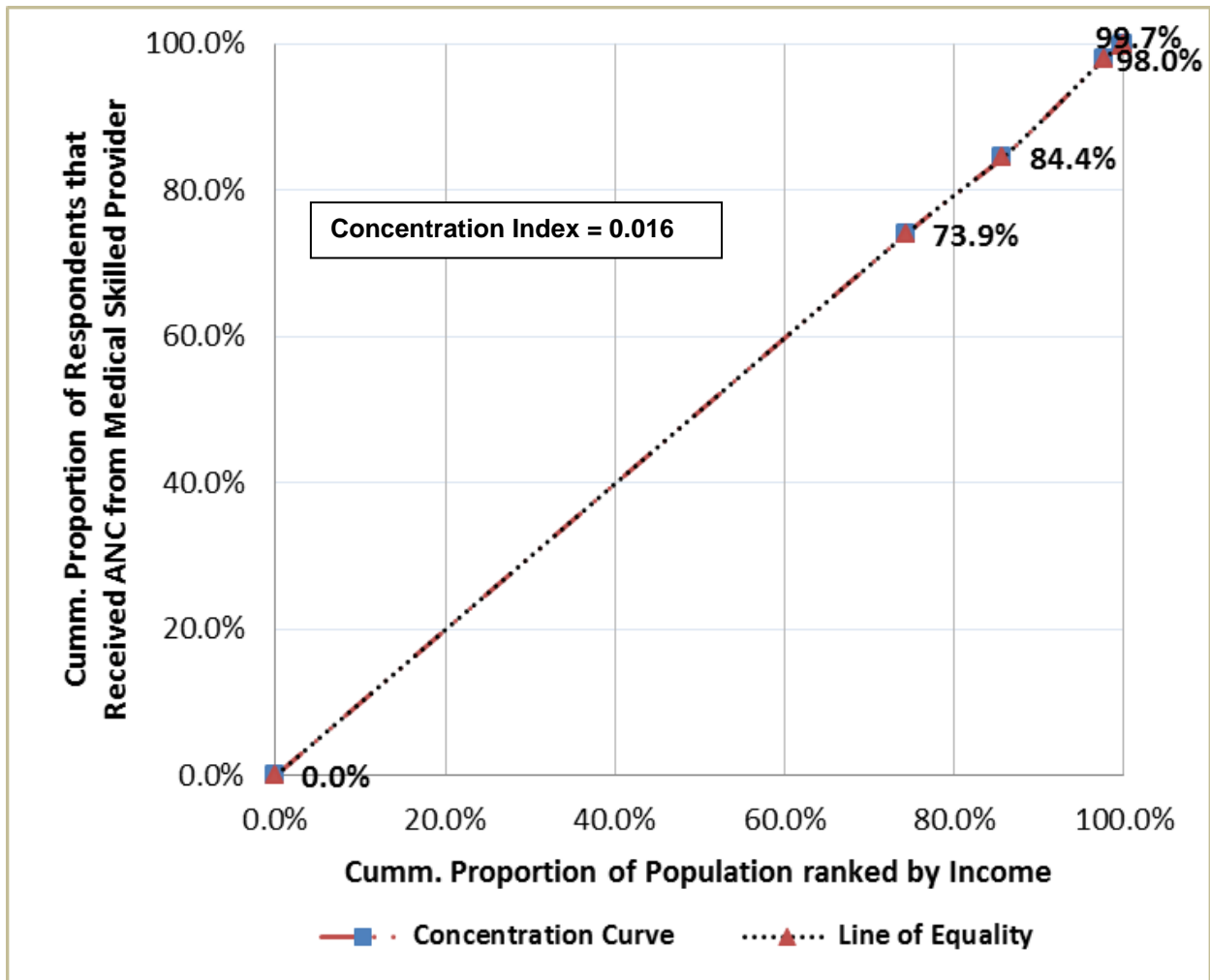


Figure 4.7: Concentration Curve of Utilization of ANC from Medical Skilled Providers

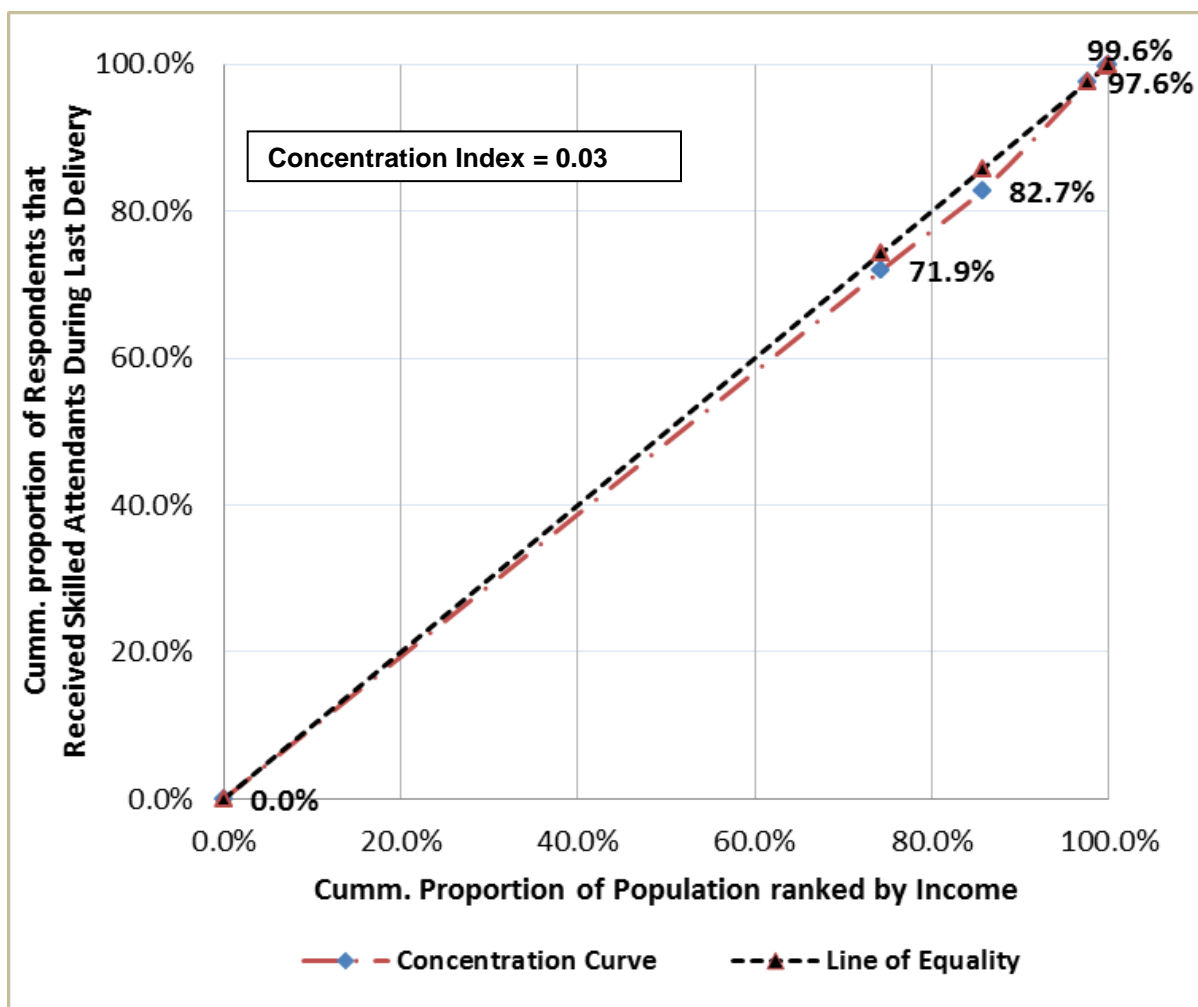


Figure 4.8: Concentration Curve of Delivery by Skilled Attendants

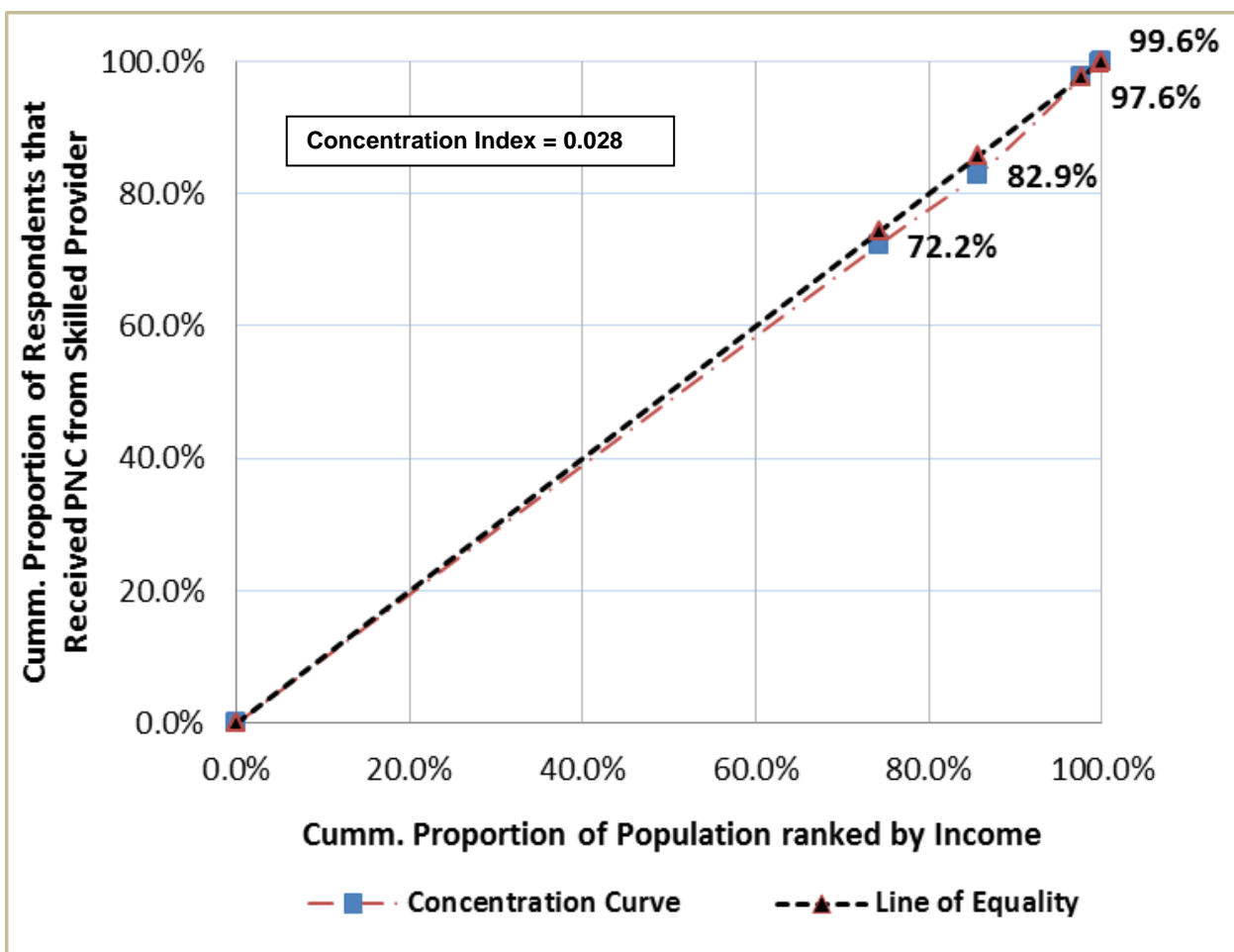


Figure 4.9: Concentration Curve of Receipt of PNC from Medical Personnel

4.5.2 Vertical equity in direct payment for maternal healthcare service utilization

The characteristics of the total direct payment for maternal healthcare service utilization among the respondents are presented in Table 4.19. The direct payment for maternal healthcare service utilization among the respondents varied greatly; and ranged from no payment for healthcare utilization to a much as Naira 252,000.00. This finding is consistent as provision of maternal healthcare in Nigeria is largely free, although additional OOPP are often made by pregnant women and their families in relations to transportation, cost of medication and some obstetric care.

Guided by Kirkwood and Sterne (2003:110), the distribution of total direct payment for maternal healthcare utilization among the respondents was asymmetrical, the direct

payment distribution were right-skewed (coefficient of skewness = 1.396) and less spread out than normal distribution (coefficient of kurtosis = 1.179). The median direct payment for maternal healthcare utilization among the respondents was Naira 2,150.00.

Table 4.19: Characteristics of the Total Direct Payment for Maternal Healthcare Service Utilization among Respondents (N = 384)

Characteristics	Value
Coefficient of Skewness	1.396
Standard Error of Skewness	0.125
Coefficient of Kurtosis	1.179
Standard Error of Kurtosis	0.248
Median	Naira 2,150.00
Range	Naira 252,000.00

The analysis of the relationship between the ability to pay (proxied by household income grouping) and total health expenditure involved the plotting of two curves – the Lorenz curve and the direct payment concentration curve (Figure 4.10) as discussed in chapter 3. The Lorenz curve indicated that there were inequality in the distribution of the total household income among respondents (Gini coefficient = 0.555).

The Kakwani index (**K**) was calculated as Concentration Index of direct payment minus Gini coefficient i.e. $0.106 - 0.555 = -0.449$.

Since Kawkwani Index was less than 1 ($K < 1$) and the direct payment concentration curve laid above the Lorenz curve for income (figure 4.10), the analysis indicated that respondents in lower income groups spent more than their total income share for maternal healthcare service utilization and those in higher income groups spent less than their share. The payment system for maternal healthcare service utilization among respondents was therefore **regressive** (Mastilica and Božikov 1999:154; The construction of Lorenz curve 2010:2) and unfair on the poor.

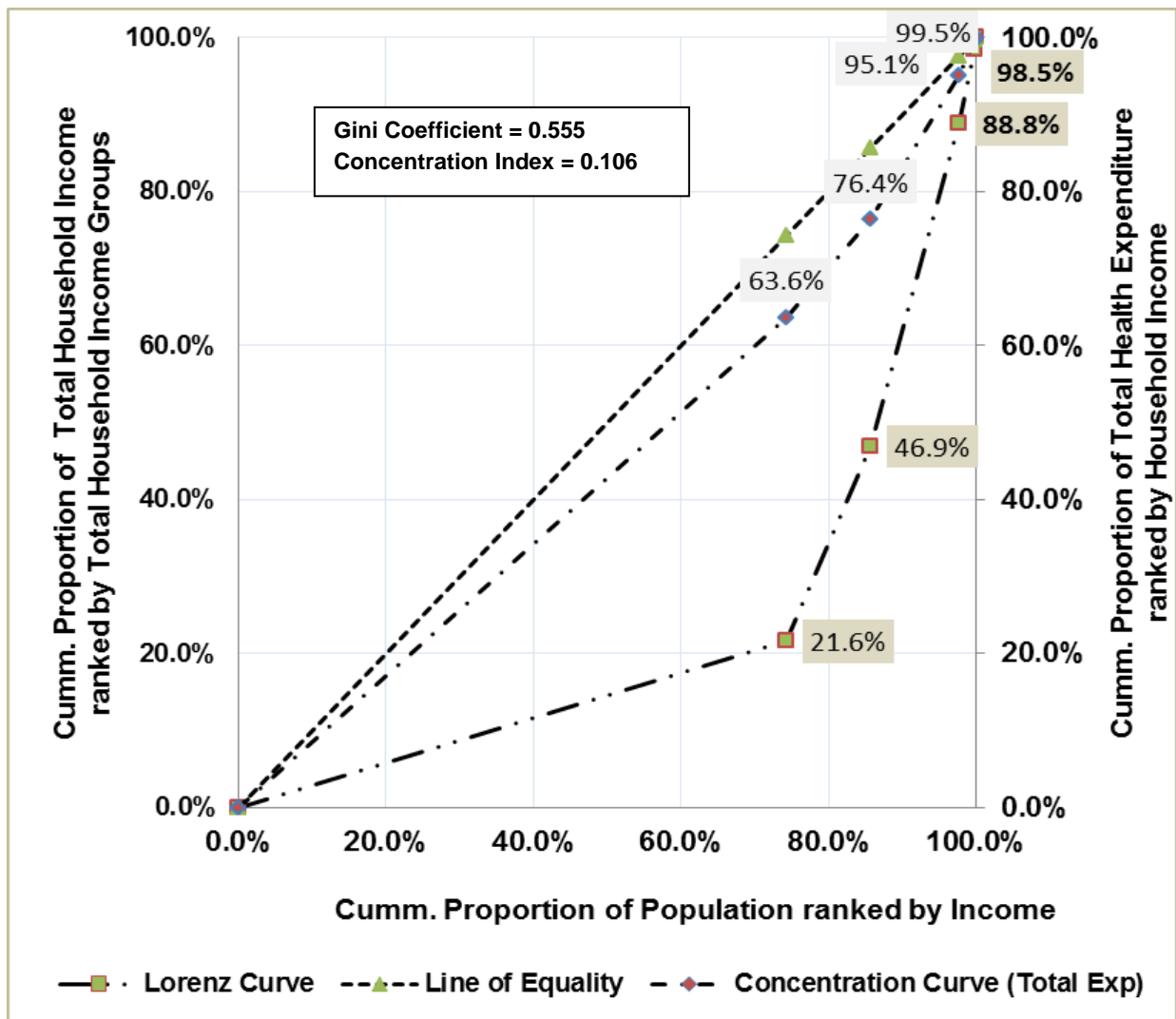


Figure 4.10: Lorenz Curve of Income and Direct Maternal Healthcare Expenditure Concentration Curve

4.6 EFFECT OF SOCIO-ECONOMIC CHARACTERISTICS ON QUALITY MATERNAL HEALTHCARE SERVICE UTILIZATION AMONG RESPONDENTS

The findings of this study with regards to the differentials in the utilization of quality maternal healthcare services among women of different SEC were presented in Section 4.4. This section included the presentation and description of the effect of the six selected independent variables on quality maternal healthcare service utilization controlling for the effects of the other independent variables in logistic regression (Chapter 3). While mindful of the different influence of each of the socio-economic characteristics (included in this

study) on the four quality maternal healthcare services established in the bivariate analysis (section 4.4), the six variables (socio-economic stratifier) were included in the regression analysis to determine their predictor effect on the utilization of maternal healthcare services among respondents.

Ahead of the discussion of the findings of the multiple regression analysis, the levels of collinearity (level of correlation) of the independent variables were estimated with **Variable Inflation Factor - VIF** (Liao and Valliant 2012:60). The reciprocal of VIF - tolerance was also computed for the variables (O'Brien 2007: 674). The six independent variables used in the regression analysis in this study did not have multi-collinearity problem as VIF for all of them presented in Table 4.20 were less than the conservative figure of 5 even when VIF of less than 10 was acceptable (Ethington sa:1).

Table 4.20 Tolerance and Variance Inflation Factor (VIF) for Stratifiers (independent variable)

Variable	Tolerance	VIF
Age group of the woman	0.959	1.042
Highest Education level of the woman	0.851	1.175
Birth Order	0.983	1.017
Location of Residence of the woman during the last pregnancy	0.941	1.063
Income group	0.969	1.032
Health Insurance coverage status	0.877	1.140

4.6.1 Factors affecting utilization of quality contraceptive services

The results of the multivariate analysis of the factors affecting the utilization of modern contraceptive services among respondents are presented in Table 4.21. All the 384 respondents were included in the analysis and -2 log likelihood was 465.977. The 'pseudo' R estimate indicated that the model explained between 15.8% (Cox & Snell R squared) and 21.0% (Nagelkerke R squared) of the variance in the utilization of modern contraceptive method (Adwere-Boamah [sa]:4) among the respondents.

Table 4.21 Logistic Regression Model of Contraceptive Services Received by Respondents (N = 384)

Variable	Log coefficient (βc)	SE	Wald	df	p value	Odd ratio Exp βc (95% C.I.)
Constant	3.527	0.996	12.530	1	0.000	34.03
Age						
less than 20 years			2.727	2	0.256	
20 – 34 years	-1.148	0.811	2.004	1	0.157	0.32 (0.07 – 1.56)
35 years and older	-0.881	0.844	1.088	1	0.297	0.42 (0.08 – 2.17)
Education						
None / Primary			26.752	2	0.000	
Secondary	-0.789	0.602	1.713	1	0.191	0.46 (0.14 – 1.48)
Post-Secondary	-1.961	0.583	11.309	1	0.001	0.14 (0.05 – 0.44)
Location of Residence during the last Pregnancy						
Rural						
Urban	-1.048	0.392	7.146	1	0.008	0.35 (0.16 – 0.76)
Income Group						
Lower			2.324	2	0.313	
Average	-0.368	0.352	1.096	1	0.295	0.69 (0.35 – 1.38)
Higher	-0.413	0.330	1.570	1	0.210	0.66 (0.35 – 1.26)
Birth Order						
Once						
More than Once	-0.044	0.233	0.036	1	0.849	0.96 (0.61 – 1.51)
Health Insurance Status						
Not Covered						
Covered	0.150	0.268	0.316	1	0.574	1.16 (0.69 – 1.97)
Total number of cases		384				
Model Chi square (df = 9)		65.850				
Model Significance (p value)		0.000				
-2 log likelihood		465.977				
Cox & Snell R Square		0.158				
Nagelkerke R Square		0.210				

In this model, maternal education (p value = 0.000) and location of residence (p value = 0.008) of the respondents were the two independent variables that had statistically significant effect as predictors of utilization of modern contraceptive methods among

women in AMAC (Table 4.21). The analysis indicated that the probability of utilizing modern contraceptive methods were lower for women with higher education level when compared to women with no or primary education (the reference group). The odds against women with secondary and post-secondary education were 0.45 and 0.14 respectively. The negative effect of education on the use of contraceptive services in this study is consistent with the marginal negative effect of women's education on the use of family planning services (odds ratio = 0.001) among women in slum areas in Kenya (Okech, Wawire and Mburu 2011:34). The effect reported in Kenya was however not statistically significant (p value > 0.05). Regarding respondents' location of residence, the model indicated that respondents that lived in urban areas had a lower likelihood (odds ratio = 0.35) of using modern contraceptive methods when compared to those in rural areas (the reference group).

There were contradictions between the independent effect of maternal age and household income (in the bivariate analysis) on use of modern contraceptive methods and the effect of the two variables (maternal age and household income) when analysed controlling for the effect of other independent variables in the regression analysis. As presented in Table 4.21, the effects of maternal age (p value = 0.256) and household income (p value = 0.313) on usage of modern contraceptive methods were not statistically significant. There were indications from the regression analysis that older respondents had lower likelihood of using modern contraceptive methods. The odds indicated that women aged 20 – 34 years (odds ratio = 0.31) and those aged 35 years and older (odds ratio = 0.42) had lower probability to use modern contraceptive methods than adolescent respondents aged less than 20 years (reference group). The model also indicated that respondents in the average (odds ratio = 0.69) and higher income groups (odds ratio = 0.66) were 0.69 and 0.66 times (respectively) less likely to use modern contraceptive method compared to those in the lower income group (reference group). A similar pattern of effect of income on contraceptive usage was observed among women in Osun state, South West Nigeria (Oyedokun 2007:10), and the observed effect was also not statistically significant. Contrary to the findings in Nigeria, Okech, Wawire and Mburu (2011:35) however reported that the average income of a woman in the slum area in Kenya has a marginal positive (odds ratio = 0.002) and statistically significant ($p < 0.05$) effect on the use of family planning services.

Consistent with the bivariate analysis, the predictive effect of birth order (p value = 0.849) and health insurance status (p value = 0.574) on the use of modern contraceptive methods among the respondents were not statistically significant (Table 4.21). The analysis indicated that respondents who had experienced more than one birth were 0.96 times less likely to use modern contraceptive methods (odds ratio = 0.96) when compared to those who had experienced only one birth (reference group). Pregnant women covered by any form of health insurance had 1.16 multiplicity of likelihood (odds ratio = 1.16) of utilizing modern contraceptive methods when compared to respondents who were not covered by any health insurance (reference group).

Regarding the relation to the overall fit of the model, the result of the analysis indicated that the null hypothesis (H_0) that the predictors did not have any effect on the utilization of modern contraceptive methods was rejected (chi-square = 65.850, df = 9; and p value = 0.000), rather the predictors maternal education and location of residence of the respondents were the predictors of utilization of modern contraceptive methods (Table 4.21).

4.6.2 Factors affecting utilization of quality ANC services

The results of the multivariate analysis of the factors affecting the utilization of ANC from medical skilled personnel among respondents are presented in Table 4.22. All the 384 respondents were included in the analysis and -2 log likelihood was 308.842. The 'pseudo' R estimates indicated that the model explained between 24.3% (Cox & Snell R squared) and 36.8% (Nagelkerke R squared) of the variance in the utilization of ANC from medical provider (Adwere-Boamah [sa]:4) among the respondents.

Consistent with the bivariate analysis, the effects of maternal age (p = 0.000) and birth order (p = 0.000) were statistically significant as predictors of utilization of ANC from medical personnel among respondents (Table 4.22). The multivariate analysis indicated that older respondents were less likely to utilize ANC services from skilled medical personnel than respondents younger than 20 years (reference group). The odds ratio was 0.02 for respondent aged 20 to 34 years and 0.03 for those aged 35 years and older. Compared to women with a birth order of one (the reference group), this analysis indicated

that the odds of using ANC from a medical provider decreased by a factor of 0.1 for women with a birth order of more than one (odds ratio = 0.1).

Table 4.22 Logistic Regression Model of Utilization of Ante-Natal Care Services by Respondents (N = 384)

Variable	Log coefficient (β_c)	SE	Wald	df	p value	Odd ratio Exp β_c (95% C.I.)
Constant	4.003	1.047	14.604	1	0.000	54.77
Age						
less than 20 years			16.564	2	0.000	
20 – 34 years	-3.757	0.931	16.281	1	0.000	0.02 (0.00 – 0.15)
35 years and older	-3.371	0.962	12.285	1	0.000	0.03 (0.01 – 0.23)
Education						
None / Primary			7.737	2	0.021	
Secondary	-1.671	0.603	7.694	1	0.006	0.19 (0.06 – 0.61)
Post-Secondary	-1.361	0.569	5.712	1	0.017	0.26 (0.08 – 0.78)
Location of Residence during the last Pregnancy						
Rural						
Urban	0.890	0.485	3.363	1	0.067	2.43 (0.94 – 6.30)
Income Group						
Lower			2.764	2	0.251	
Average	0.535	0.437	1.501	1	0.220	1.71 (0.73 – 4.02)
Higher	-0.408	0.448	0.830	1	0.362	0.67 (0.28 – 1.60)
Birth Order						
Once						
More than Once	-2.267	0.316	51.593	1	0.000	0.10 (0.06 – 0.19)
Health Insurance Status						
Not Covered						
Covered	-0.417	0.379	1.209	1	0.272	0.66 (0.31 – 1.39)
Total number of cases		384				
Model Chi square (df = 9)		106.959				
Model Significance (p value)		0.000				
-2 log likelihood		308.842				
Cox & Snell R Square		0.243				
Nagelkerke R Square		0.368				

There were contradictions between the independent effect of maternal education and coverage by health insurance (in the bivariate analysis) on use of ANC services provided by medical providers and the effect of the two variables (maternal education and health insurance coverage) when analysed controlling for the effect of other independent variables in the regression analysis (Table 4.22).

Unlike the bivariate analysis, the effect of maternal education as a predictor of utilisation of ANC services from medical provider was statistically significant (p value= 0.021) in the multivariate analysis. The model indicated that respondents with secondary education and those with post-secondary education had lower probability of using ANC from medical personnel relative to those with no or primary education (the reference group). The odds ratios were 0.19 and 0.26 for secondary and post-secondary education level respectively (Table 4.22).

The effect of health insurance coverage as a predictor of utilization of ANC from medical personnel among respondents was however not statistically significant (p value = 0.272). The model however indicated that pregnant women covered by any form of health insurance had 0.66 less likelihood of utilizing quality ANC service when compared to those without insurance coverage (the reference group).

Consistent with the bivariate analysis, the predictive effect of location of residence (p value = 0.067) and household income (p value = 0.251) on the use of ANC services from medical provider among respondents were not statistically significant (Table 4.22). The analysis however indicated that respondents in urban areas had a higher likelihood (odds ratio = 2.43) to utilize ANC from medical provider compared to those in rural areas (reference group). Regarding household income, the analysis indicated that respondents in the average income group had 1.71 higher probabilities (odds ratio = 1.71) to utilize ANC from medical personnel than those in the lower income group (reference group). Respondents in the higher income group however had 0.67 less likelihood compared to the reference group to utilize ANC from medical provider (Table 4.22).

Regarding the relation to the overall fit of the model, the result of the analysis indicated that the null hypothesis (H_0) that the predictors did not have any effect on the utilization of ANC rendered by skilled medical providers, was rejected (chi-square = 106.959, df = 9, and p value = 0.000). Rather, maternal age, maternal education and birth order were the predictors of utilization of ANC rendered by skilled medical providers (Table 4.22).

4.6.3 Factors affecting utilization of skilled attendants at last birth

The results of the multivariate analysis of the factors affecting the utilization of skilled attendants at last birth are presented in Table 4.23. All the 384 respondents were included in the analysis and -2 log likelihood was 445.04. The 'pseudo' R estimates indicated that the model explained between 12.9% (Cox & Snell R squared) and 17.7% (Nagelkerke R squared) of the variance in the utilization of skilled attendants at last birth (Adwere-Boamah [sa]:4) among the respondents.

Consistent with the bivariate analysis, the effects of maternal age (p value = 0.009), birth order (p value = 0.000) and health insurance status (p value = 0.007) were statistically significant as predictors of utilization of skilled attendants at last birth among respondents (Table 4.23). The model indicated that older respondents were less likely to be assisted by skilled attendants at birth than younger respondents aged younger than 20 years (the reference group). Women aged 20 to 34 years and those aged 35 years and older were respectively 0.1 and 0.13 less likely to utilize skilled attendants at birth than those younger than 20 years (the reference group).

When compared to women with a birth order of one (the reference group), the multivariate analysis indicated that women with birth order of more than one were 0.41 less likely to utilize skilled attendants at birth. In addition, the model indicated that respondents who were covered by any form of health insurance were less likely by a factor of 0.43 to utilize skilled attendants at delivery when compared to those not covered by health insurance (the reference group).

Table 4.23 Logistic Regression Model of Utilization of Skilled Attendants at Last Birth by Respondents (N = 384)

Variable	Log coefficient (βc)	SE	Wald	df	p value	Odd ratio Exp βc (95% C.I)
Constant	2.958	0.901	10.785	1	0.001	19.26
Age						
less than 20 years			9.314	2	0.009	
20 – 34 years	-2.353	0.804	8.553	1	0.003	0.10 (0.02 – 0.46)
35 years and older	-2.018	0.830	5.908	1	0.015	0.13 (0.03 – 0.68)
Education						
None / Primary			4.080	2	0.130	
Secondary	-0.967	0.487	3.947	1	0.047	0.38 (0.15 – 0.99)
Post-Secondary	-0.870	0.468	3.448	1	0.063	0.42 (0.17 – 1.05)
Location of Residence during the last Pregnancy						
Rural						
Urban	0.241	0.351	0.471	1	0.493	1.27 (0.64 – 2.53)
Income Group						
Lower			3.264	2	0.196	
Average	0.204	0.357	0.326	1	0.568	1.23 (0.61 – 2.47)
Higher	-0.599	0.372	2.594	1	0.107	0.55 (0.27 – 1.14)
Birth Order						
Once						
More than Once	-0.900	0.235	14.637	1	0.000	0.41 (0.26 – 0.65)
Health Insurance Status						
Not Covered						
Covered	-0.855	0.314	7.402	1	0.007	0.43 (0.23 – 0.79)
Total number of cases		384				
Model Chi square (df = 9)		52.935				
Model Significance (p value)		0.000				
-2 log likelihood		445.04				
Cox & Snell R Square		0.129				
Nagelkerke R Square		0.177				

There were contradictions between the independent effect of maternal education (in the bivariate analysis) on use of skilled attendants at birth and the effect of the variable

(maternal education) when analysed controlling for the effect of other independent variables in the regression analysis. Unlike the result of the bivariate analysis, the effect of maternal education as a predictor of utilization of skilled attendants at birth among respondents was not statistically significant (p value = 0.130). The logistic regression however indicated that respondents with secondary and post-secondary education had lower likelihood of receiving skilled attendants at birth when compared to those with no or primary education (reference group). The odds were 0.38 against women with secondary level education and 0.42 against those with post-secondary education (Table 4.23).

Consistent with the bivariate analysis, the predictive effect of location of residence (p value = 0.493) and household income (p value = 0.196) on the utilization of skilled attendants at last birth among the respondents were not statistically significant (Table 4.23). The result of multivariate analysis however indicated that respondents in urban areas had 1.27 multiplicity of likelihood of receiving skilled attendants at delivery (odds ratio = 1.27) when compared to those in rural areas (the reference group). Regarding household income, the analysis indicated that respondents in the average income group had a higher likelihood of utilizing skilled attendants at last birth to a factor of 1.23 (odds ratio = 1.23) when compared to those in the lower income group (reference group). Women in the higher income group however had 0.55 less likelihood of utilizing skilled attendants when compared to those in the lower income group (reference group).

Regarding the relation to the overall fitness of the model, the result of the analysis indicated that the null hypothesis (H_0) that the predictors did not have any effect on the utilization of skilled attendants at birth was rejected (chi-square = 52.935, df = 9, and p value = 0.000), rather maternal age, birth order and health insurance coverage were the predictors of utilization of skilled attendants at birth (Table 4.23).

4.6.4 Factors affecting utilization of PNC from medical personnel

The results of the multivariate analysis of the factors affecting the utilization of PNC services from skilled personnel are presented in Table 4.24. All the 384 respondents were included in the analysis and -2 log likelihood was 451.969. The 'pseudo' R estimates indicated that the model explained between 13.4% (Cox & Snell R squared) and 17.0%

(Nagelkerke R squared) of the variance in the utilization of PNC from medical personnel (Adwere-Boamah [sa]:4).

Table 4.24 Logistic Regression Model of Utilization of Post-Natal Care Services by Respondents (N = 384)

Variable	Log coefficient (βc)	SE	Wald	df	p value	Odd ratio Exp βc (95% C.I)
Constant	3.004	0.903	11.071	1	0.001	20.17
Age						
less than 20 years			10.884	2	0.004	
20 – 34 years	-2.357	0.805	8.576	1	0.003	0.10 (0.02 – 0.46)
35 years and older	-1.843	0.829	4.939	1	0.026	0.16 (0.03 – 0.80)
Education						
None / Primary			5.703	2	0.058	
Secondary	-1.091	0.491	4.934	1	0.026	0.34 (0.13 – 0.88)
Post-Secondary	-1.112	0.475	5.488	1	0.019	0.33 (0.13 – 0.83)
Location of Residence during the last Pregnancy						
Rural						
Urban	0.337	0.352	0.920	1	0.338	1.40 (0.70 – 2.79)
Income Group						
Lower			2.989	2	0.224	
Average	0.295	0.353	0.698	1	0.403	1.34 (0.67 – 2.68)
Higher	-0.497	0.363	1.873	1	0.171	0.61 (0.30 – 1.24)
Birth Order						
Once						
More than Once	-0.834	0.234	12.714	1	0.000	0.43 (0.27 – 0.69)
Health Insurance Status						
Not Covered						
Covered	-0.731	0.304	5.764	1	0.016	0.48 (0.27 – 0.87)
Total number of cases		384				
Model Chi square (df = 9)		50.724				
Model Significance (p value)		0.000				
-2 log likelihood		451.969				
Cox & Snell R Square		0.124				
Nagelkerke R Square		0.170				

Consistent with the bivariate analysis, the effects of maternal age (p value = 0.004), birth order (p value = 0.000) and health insurance status (p value = 0.016) were statistically significant as predictors of utilization of PNC from medical personnel among respondents (Table 4.24). The model indicated that older respondents were less likely to utilize PNC rendered by medical providers than younger respondents aged younger than 20 years (the reference group). Women aged 20 to 34 years and those aged 35 years and older were respectively 0.1 and 0.16 less likely to utilize PNC rendered by medical providers than those aged younger than 20 years (the reference group). When compared to women with a birth order of one (the reference group), the multivariate analysis indicated that women with a birth order of more than one were 0.43 less likely to utilize PNC rendered by a skilled medical provider. In addition, the model indicated that respondents who were covered by any form of health insurance were less likely by a factor of 0.48 to utilize PNC rendered by a skilled medical provider than those who were not covered by health insurance (the reference group).

There were contradictions between the independent effect of maternal education (in the bivariate analysis) on use of PNC services provided by medical providers and the effect of the variable (maternal education) when analysed controlling for the effect of other independent variables in the regression analysis (Table 4.24). The effect of maternal education as a predictor of utilization of PNC from medical provider among respondents (p value = 0.058) was not statistically significant. The model however indicated that respondents with secondary and post-secondary education had lower likelihood of utilizing PNC services from medical personnel compared to those with no or primary education (reference group). The odds ratio was 0.34 for respondents with secondary level education and 0.33 for those with post-secondary education (Table 4.24).

Consistent with the bivariate analysis, the effect of location of residence (p value = 0.338) and household income (p value = 0.224) as predictors of utilization of PNC from medical personnel was not statistically significant effects (Table 4.24). The multivariate analysis indicated that respondents in urban areas had 1.4 higher likelihood (odds ratio = 1.4) of utilizing PNC services from medical personnel than those in rural areas (reference group). Regarding household income, the model indicated that respondents in the average income

group had 1.34 multiplicity of likelihood to utilize PNC service from medical personnel when compared to those in the lower income group (reference group). The likelihood of utilizing PNC from medical provider among women in the higher income group was however lower (odds ratio = 0.61) when compared to those in the low income group (reference group).

Regarding the relation to the overall fitness of the model, the result of the analysis indicates that the null hypothesis (H_0) that the predictors did not have any effect on the utilization of PNC from medical provider was rejected (chi-square = 50.724, df = 9, and p value = 0.000), rather the maternal age, birth order and health insurance coverage were the predictors of utilization of PNC from medical providers (Table 4.22).

4.7 OVERVIEW OF RESEARCH FINDINGS

The utilization of each of the four quality maternal healthcare services varied among women of different SEC in AMAC, Abuja Nigeria. A higher proportion of the respondents utilized ANC from medical providers during their last pregnancy compared to other maternal healthcare services. Among the maternal healthcare services, the lowest proportion of respondents in this study used modern contraceptive methods, a finding consistent with the low knowledge of modern contraceptive knowledge among the respondents.

The distribution of annual household income and direct payment for maternal healthcare service utilization among the respondents varied and were asymmetrical. Although the median annual household income of Naira 699,996.00 among the respondents in this study was higher than the national average of Naira 216,000.00 (based on the approved minimum wage of Naira 18,000 per month) a majority of the respondents in this study were however categorized into the low income groups. Similarly, there were wide differentials in the distribution of direct payment for maternal healthcare service utilization, with some respondents making payment as much as Naira 252,000.00 while others do not make any payment. The median direct payment for maternal healthcare service utilization among the respondents was Naira 2,150.00 during their last pregnancy. It is therefore consistent for

the findings of this study to indicate inequality in the utilization of quality maternal healthcare services among women with different SEC and to indicate that the payment system for maternal healthcare services utilization was regressive among pregnant women in AMAC, Abuja Nigeria.

The independent effect (bivariate analysis) of the six socio-economic characteristics included in this study on the utilization of quality maternal healthcare services varied when analysed controlling for the effect of other independent variables in the regression analysis. In some instance, the effect in the bivariate analysis was consistent with the multivariate analysis, while in other instances there contradiction in the observed effect.

The predictive effect of maternal age and birth order on quality maternal healthcare utilization among the respondents in the multivariate analysis was consistent with the bivariate analysis except for the use of modern contraceptive methods. There were contradictions between the independent effect of maternal age (in the bivariate analysis) on use of modern contraceptive methods and the effect of the variable (maternal age) when analysed controlling for the effect of other independent variables in the regression analysis. The independent effect of maternal age (bivariate analysis) on the use of modern contraceptive method was statistically significant.

A consistent statistically significant effect of maternal education and location of residence on the use of modern contraceptive methods was also established in both the bivariate and multivariate analysis. The effects of maternal education on the utilization of ANC from medical provider in the bivariate and multivariate analysis were contradictory. The predictive effect of maternal education on the utilization of ANC from medical provider was statistically significant in the regression analysis.

In both the bivariate and multivariate analysis, the effect of coverage by health insurance on the receipt of skills attendant at last delivery and utilization of PNC from medical providers were statistically significant among the respondents. However, there was contradiction in the independent effect (bivariate analysis) of coverage by health insurance on the use of ANC from medical provider and the effect of the variable (coverage by health

insurance) when included in the regression analysis. The independent effect of coverage by health insurance (bivariate analysis) on the utilization of ANC from medical provider was statistically significant.

In this study, the effects of household income on the utilization of ANC from medical provider, receipt of skilled attendant at last birth and use of PNC from skilled personnel were not statistically significant and consistent in both the bivariate and multivariate analysis. However, the independent effect of household income (bivariate analysis) on the use of modern contraceptive methods was statistically significant.

4.8 CONCLUSION

The relationship between key socio-economic characteristics of pregnant women in AMAC, Abuja Nigeria and the utilization of maternal health services were presented and discussed in this chapter. Varied relationships were indicated for the six socio-economic characteristics of the respondents included in this study with regards to the utilization of quality maternal healthcare services in AMAC, Abuja Nigeria.

Based on the findings of the study, conclusions are made in the next chapter on the socio-economic factors that contribute to the exclusion of women from maternal health benefit in AMAC, Abuja Nigeria. Thereafter, the limitations of the study are outlined and recommendations made to address socio-economic factors that exclude women from maternal healthcare service utilization in AMAC, Abuja, Nigeria.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In this chapter, the conclusions from the study of the socio-economic factors contributing to the exclusion of women from maternal health benefits in Abuja, Nigeria were discussed. The conclusions were based on the literature review in Chapter 2 and the research findings in Chapter 4. The chapter also included recommendations to address socio-economic factors that exclude women from utilizing maternal healthcare services in AMAC, Abuja, Nigeria. Thereafter, the limitations of the study were outlined.

The chapter also included an overview of the research design and method; and the contribution of the research to the body of evidence on maternal healthcare.

5.2 RESEARCH DESIGN AND METHOD

A non-experimental, facility-based cross-sectional survey was done. Data collection was done using structured interviewer administered questionnaire in 5 district hospitals in AMAC. Sample size of 384 was calculated *a priori* and equal allocation of samples per facility was done. An interviewer administered data collection approach via the use of a questionnaire developed for the study was adopted. The instrument was informed by the conceptual framework for this research (Chapter 1) as well as the review of literature (Chapter 2).

Data analysis included descriptive statistics, cross tabulations and measures of inequality. Logistic regression analysis was used to test the hypothesized relationship between socioeconomic characteristics (predictors) and maternal healthcare service utilization. A detailed description of the research design and methods was made in chapter 3 of this report.

5.3 CONCLUSIONS

It is established that maternal health benefit is achieved when women are able to reduce their number of pregnancies; number of pregnancy-related complications; and the likelihood that pregnancy-related complications result in death (McCarthy 1997:S18). Achievement of this status of maternal health is premised upon equitable utilization of maternal healthcare services that include contraceptive services, ANC services and delivery care services, and PNC services. This study however indicated differentials in the utilization of maternal healthcare services among women with different SEC, and that the pattern of utilization of maternal healthcare services was inequitable across household income categories of the respondents.

Women in AMAC, Abuja, Nigeria made direct payment for the use of maternal healthcare services. The payment pattern varied across the different maternal healthcare services and across women with different SEC. Based on the findings of this study, the direct payment for maternal healthcare service utilization in AMAC was regressive (kakwani index = -0.449), not equitable and in favour of the rich. Women in the lower income groups spent more than their total income share for maternal healthcare utilization and those in higher income groups spent less than their share. This pattern is not fair and contributes to the exclusion of women especially those in the lower income group from maternal health benefits in AMAC, Abuja, Nigeria.

This study concludes that the regressive payment pattern together with the inequality in maternal healthcare service utilization contributes to the exclusion of women, especially those in the lower income group, from maternal health benefits in AMAC, Abuja Nigeria. An elaboration of the conclusions drawn from the bivariate analysis across the utilization of the four maternal healthcare services are presented below, and thereafter followed by conclusions related to the socio-economic predictors of utilization of maternal healthcare services (from multivariate analysis) among women in AMAC, Abuja, Nigeria.

5.3.1 Utilization and inequalities in maternal healthcare services among women of different socio-economic characteristics in AMAC, Abuja, Nigeria

5.3.1.1 Utilization of contraceptive services

The knowledge of contraceptive methods among pregnant women in AMAC, Abuja, Nigeria was low. The mean score for the knowledge of contraceptive methods was 2.24 (s.d = \pm 1.88) out of a maximum score of 13. In line with expectation (NPC 2009:65), a higher proportion of respondents with good knowledge of contraceptive methods were aged 20 – 34 years, had higher education level and lived in urban areas. Overall, only 14% of the respondents had good knowledge of contraceptive methods.

Related to the use of modern contraceptive methods, this study concludes that maternal age (p value = 0.002), maternal education (p value = 0.000) and location of residence (p value = 0.000) and household income (p value = 0.017) independently influenced the use of modern contraceptive methods among the women in AMAC, Abuja, Nigeria. These findings were consistent as socio-economic characteristics of maternal age, maternal education and location of residence and household income were established in this study to influence the knowledge of contraceptive methods among the respondents.

The high proportion of adolescents (aged less than 20 years) excluded from the utilization of modern contraceptive services in this study and at national level (NBS 2013:129; NPC 2009:70) continues to be of concern. While further studies are required to explain the observed pattern, the perception that contraceptive services encourage young people aged 15 – 24 years (including adolescents) to be 'loose' (sexual promiscuity) as reported in FMOH (2008:127) and the relative difficulty in accessing contraceptive methods among adolescents reported in the NARHS (FMOH 2008; 1302) provide initial explanation for the observation.

Although a high proportion of respondent who utilized modern contraceptive methods in this study were in the low income group, this study conclude that there were inequalities in favour of the rich (concentration index = 0.059) in the utilization of modern contraceptive methods among respondents. The fact that contraceptive services were reported not to be

affordable in Nigeria (FMOH 2008:129) could explain the observed inequality in utilization in AMAC, Abuja Nigeria.

Respondents from this study largely procured contraceptive methods outside of health facilities. The women sourced contraceptives from pharmaceutical stores, local stores and street vendors which are not covered by any form of health insurance. The conclusion drawn from this study that the use of modern contraceptive methods was not influenced by health insurance coverage (p value = 0.06) was therefore consistent.

5.3.1.2 Utilization of Antenatal care services

Variation in the usage of ANC services across the different socio-economic characteristics of women in AMAC, Abuja Nigeria was established in this study. The quality of care with regards to service provider, facility and satisfaction level also varied among the respondents.

This study concludes that maternal age (p value = 0.000) and birth order (p value = 0.000) independently influenced the use of ANC services from medical provider among women in AMAC, Abuja, Nigeria. A higher proportion of respondents aged 20 – 34 years utilized ANC services from skilled provider. The observed pattern was consistent with those who had ever used ANC services from any provider in this study as well as the national pattern of ANC utilization (NBS 2013:137; NPC 2009:126). A higher proportion of respondents with birth order more than one utilized ANC services in this study.

Although insurance coverage was generally low among the respondents, this study concludes that the usage of ANC services from medical personnel among women in AMAC, Abuja, Nigeria was independently influenced by health insurance coverage (p value = 0.021). The observed relationship might be attributed to the fact that majority of women in AMAC, Abuja, Nigeria on health insurance were covered by health insurance related to facility-based care, and utilization of facility-based care for ANC was almost universal among the respondents in this study. It is however important to understudy the extent of coverage benefit for maternal healthcare services in the NHIS to deepen understanding around the relationship in Nigeria.

In this study, the variation in utilization of ANC services from medical provider among women of different educational levels (p value = 0.057) and those residing in different locations (p value = 0.921) did not translate into an established relationship. This study also did not establish a relationship between household income and use of ANC services from medical provider (p value = 0.294). While noting that the highest proportion of respondent who utilized ANC services from medical provider in this study were in the lowest income group, unlike the pattern in national studies (NBS 2013:137; NPC 2009:126), this study concludes that there were inequality (concentration index = 0.016) in the utilization of ANC services from medical provider among women in AMAC, Abuja Nigeria and service utilization was concentrated among the rich when compared to the poor women

5.3.1.3 Utilization of delivery care and postnatal care services

The independent influence of socio-economic characteristics included in this study on the utilization of skilled attendants at delivery and receipt of PNC services from medical personnel were similar among women in AMAC, Abuja, Nigeria.

Most pregnant women in AMAC, Abuja, Nigeria received delivery and PNC services from medical personnel (doctor, nurse / midwife and auxiliary nurse) in health facilities (public / private). Similar to the findings in national studies (NBS 2013:144-145; NPC 2009:134), a higher proportion of women aged 20 – 34 years received skilled attendants at birth and utilized PNC services from medical personnel. This study concludes that maternal age independently influenced the utilization of skilled attendants at birth (p value = 0.000) as well as utilization of PNC services from medical provider (p value = 0.000) among women in AMAC, Abuja, Nigeria.

Past experience relating to pregnancy, childbirth and post-natal care (birth order) remains one of the factors that influence the decision of women to utilize services. Like ANC service utilization, this study established that birth order affected the utilization of skilled attendant at delivery (p value = 0.000) and the use of PNC services from medical provider (p value = 0.000) among pregnant women in AMAC, Abuja Nigeria. A higher proportion of respondents with birth order more than one utilized delivery care and PNC services in this

study contrary to the findings in Delta State – South-South Geopolitical region of Nigeria (Awusi et al 2009:23). Geographic variation in the utilization of skilled attendants at delivery (NPC 2009:134) and PNC services from medical provider (NPC 2009:136) reported in the 2008 NDHS might explain the variation between this study and earlier report in Awusi et al (2009:23). Abuja, the Federal Capital Territory of Nigeria is located in the North-Central Geopolitical region of Nigeria.

Similar to the conclusion on the utilization of ANC services, health insurance coverage affected the use of skilled attendants at delivery (p value = 0.000) and utilization of PNC services from medical provider (p value = 0.000) among women in AMAC, Abuja Nigeria.

Higher proportion of educated women in AMAC, Abuja Nigeria utilized delivery care and PNC services. This study concludes that utilization of skilled attendants at birth (p value = 0.021) and PNC services from medical provider (p value = 0.008) were influenced by maternal age. As discussed in Chapter 2, education provides women with improved awareness of the importance and location of maternal health services, which in the case of this study might account for the observed relationship.

In this study, the variation in the utilization of delivery care and PNC services among women that were resident in different locations in AMAC, Abuja Nigeria did not translate into an established relationship with the utilization of skilled attendants at delivery (p value = 0.176) and PNC services from medical provider (p value = 0.240). This study also concludes that the independent influence of household income on the use of both delivery care from skilled provider (p value = 0.183) and PNC services from medical provider (p value = 0.238) did not translate into an established relationship.

Although a higher proportion of women who utilized skilled attendants at delivery and PNC services from medical personnel were in the lower income groups, this study conclude that there were inequality in the utilization of skilled attendants at delivery (concentration index = 0.03) and PNC services from medical provider (concentration index = 0.028) among pregnant women in AMAC, Abuja Nigeria.

5.3.2 Socio-economic predictor of utilization of maternal healthcare services among women in AMAC, Abuja Nigeria

The interplay of the effect of the different socio-economic characteristics of women in the reduction of maternal mortality was established in literature (Adeyi and Morrow 1996:125; McCarthy 1997:S17; Maine et al 1997:12). This study concludes that selected socio-economic factors (included in this study) of women in AMAC, Abuja Nigeria were predictors of different maternal healthcare service utilization (model p value = 0.000 for the four maternal healthcare services).

The conclusions from this study on the predictive effect of the socio-economic factors on maternal healthcare service utilization among women in AMAC were based on the behavioural model of health services utilization (Andersen and Newman 2005:12). The conclusions were informed by the findings of the logistic regression analysis and included the effect of maternal age, birth order and maternal education as predisposing factors; and household income, location of residence and health insurance coverage as enabling factors of maternal healthcare service utilization in AMAC, Abuja Nigeria (Section 2.5).

5.3.2.1 Predisposing predictors of maternal healthcare service utilization

Related to predisposing factors to maternal healthcare service utilization, this study concludes that maternal age during pregnancy played a critical role (as a predisposing factor) in the utilization of ANC services from medical providers (p value = 0.000); the receipt of skilled attendants at birth (p value = 0.009); and the utilization of PNC services rendered by medical personnel (p value = 0.004). Similar findings were established in earlier studies (Awusi et al 2009:22; Mekonnen and Mekonnen 2003:375). In this study, older women were less likely than younger women to utilize ANC, delivery care and PNC services. Exposure to better information on healthcare and limited pregnancy-related experience (a motivating factor) among younger women could contribute to the observed pattern.

Another predisposing socioeconomic factor that influenced the utilization of ANC from medical provider (p value = 0.000); receipt of skilled attendants at birth (p value = 0.000)

and utilization of PNC services from medical personnel (p value = 0.000) was birth order. Like earlier studies (Awusi et al 2009:22; Mekonnen and Mekonnen 2003:375), this study conclude that past experience related to pregnancy, childbirth and postnatal care remains one of the predisposing factors that influenced the decision of women to utilize maternal healthcare services in AMAC. However, there were concerns that women who had experienced more than one birth were less likely to utilize ANC, delivery care and PNC services in AMAC. This observation might be related to the (perceived) quality of care received by pregnant women, as experience related to poor-quality care could be a disincentive for continuing service utilization. An assessment of the quality of maternal healthcare services in AMAC, Abuja Nigeria is desirable to explore this relationship and proffer necessary actions if any for improvement.

Unlike the two other predisposing factors, this study concludes that maternal education is a predisposing factor in the use of modern contraceptive methods (p value = 0.000) and ANC rendered by medical providers (p value = 0.021). Contrary to the argument in earlier studies (Adanu 2010:155; Butawa et al 2010:75), the findings of this study indicated that higher maternal education decreased the likelihood of using modern contraceptive methods and ANC services among women in AMAC.

Based on the result of the logistic regression, maternal age and birth order were not established as predisposing factors that affected the utilization of contraceptive services. Maternal education was not a factor that influenced the use of ANC, delivery care and PNC services among women in AMAC.

5.3.2.2 Enabling predictors of maternal healthcare service utilization

This study concludes that health insurance coverage was an enabling factor for the use of skilled attendants at delivery (p value = 0.007); and receipt of PNC services from medical provider (p value = 0.016) among women in AMAC, Abuja Nigeria. The findings indicated that coverage by health insurance lowers the likelihood of utilizing skilled delivery care and PNC from medical providers among women in AMAC. The finding might depict the equity concerns raised with regard to the coverage and benefits of health insurance schemes in low and middle income countries (Ibiwoye and Adeleke 2000:220; Meng et al 2011:94). A

study of the coverage of and benefit package for maternal healthcare services in the National Health Insurance Scheme in Nigeria is proposed to deepen understanding of the relationship between health insurance coverage and utilization of maternal healthcare services.

The conclusions drawn from this study indicated that location of residence was an enabling factor for the use of modern contraceptive services among women in AMAC. There was a lower likelihood of usage of contraceptive services among women in urban areas compared to those in rural areas. Although location of residence was not established as enabling factor for the use of ANC, delivery care and PNC services, the findings of this study however suggest that respondents in urban areas had higher likelihood of utilizing the three maternal healthcare services. The effect of this enabling factor was consistent, as a mixed effect of location as a predictor of utilization of maternal healthcare services was reported across several studies (Mekonnen and Mekonnen 2003:376-8; Say and Raine 2007:814; Zere et al 2010:5).

Among women in AMAC, this study concludes that household income was not an enabling factor for the utilization of any of the maternal healthcare services. Health insurance coverage was not found to be an enabling factor for the utilization of contraceptive and ANC services. The location of residence was not a factor that influenced usage of ANC, delivery care and PNC services among women in AMAC.

5.4 RECOMMENDATIONS

The following recommendations to improve coverage and understanding of maternal healthcare services utilization among women of different socio-economic characteristics in AMAC, Abuja Nigeria are made in this section based on the findings of this study.

5.4.1 Recommendations to improve coverage of maternal healthcare service utilization among women in AMAC, Abuja Nigeria

- The inequality in the utilization of maternal healthcare services and the regressive direct payment system for maternal healthcare service expenditure in AMAC, Abuja Nigeria remains a concern. Policy-level actions are recommended to broaden the coverage of the National Health Insurance Scheme (NHIS) in Nigeria. Such actions should promote community-based insurance schemes to eliminate regressive payment system and to address inequality in the utilization of maternal healthcare services among women. In taking forward this recommendation, the health insurance coverage plan needs to be explicit on the benefit package for maternal healthcare services especially delivery care and PNC for which health insurance was established as a predictive enabling factor for utilization in this study. The health insurance scheme also needs to include options such as co-payment and subsidy to cover the cost of highly specialized care which are often expensive to improve fairness in the payment method, and thereby move the payment scheme toward a progressive system.
- Mindful of the fact that maternal age was a predisposing factor for the utilization of ANC, delivery care and PNC services; age appropriate services are recommended to scale up service utilization in AMAC, Abuja, Nigeria. This recommendation is important especially in the context of adolescents who though have high likelihood of utilizing maternal healthcare services but in reality continue to be excluded from care. In this study, the lowest proportion of respondent who utilized all the maternal healthcare services were adolescents aged less than 20 years. It is recommended that **Adolescent Friendly Health Services (AFHS)** be promoted as a programme option to improve maternal health benefit in AMAC, Abuja, Nigeria. The AFHS should go beyond clinical care to also mobilize adolescent to demand services and address perceptions and capacity gap among health workers in caring for adolescent especially with regards to ANC, delivery care and PNC services.
- As a strategy to optimize utilization of maternal healthcare services in AMAC, Abuja Nigeria, social mobilization programme targeting women who have experienced more

than one birth should be prioritized. The programme should focus on addressing demand side concerns identified by the women in relation to past experience in the utilization of ANC, delivery care and PNC services.

- To address any quality concern that might contribute to the exclusion of women who had experienced more than one birth from ANC, delivery care and PNC, it is recommended that quality improvement initiatives be introduced and mainstreamed within the standard operating procedure for maternal healthcare services in AMAC, Abuja, Nigeria. This initiative will strengthen the stewardship and oversight function of the government to assure quality of maternal healthcare in AMAC, Abuja Nigeria.
- A review of implementation approach for family planning services in AMAC, Abuja Nigeria is recommended to take advantage of the predictive effects of maternal education and location of residence on utilization of modern contraceptive methods. The approach should include clear information on the benefit and use of the different contraceptive methods to improve the low level of knowledge among respondents. The review should also engage various community-based settings as entry points in urban and rural areas to improve the uptake of modern contraceptive methods among women in AMAC, Abuja Nigeria irrespective of their location of residence.

5.4.1 Recommendations for further studies

The following studies based on the findings and conclusion drawn from this study are recommended to improve understanding of the factors contributing to the exclusion of women from maternal health benefit in AMAC, Abuja, Nigeria.

- A study of the coverage of and benefit package for maternal healthcare services in the NHIS in Nigeria is recommended with a view to determining the extent to which maternal healthcare services are covered in the health insurance plan.
- Policy research on healthcare financing in Abuja, Nigeria to provide additional insight into the strength and weakness of the different financing options for maternal healthcare services to guide necessary reforms.

- Clinical review of the quality of the four maternal healthcare services in Abuja, Nigeria is recommended to determine gaps in the service performance against national and international standards. The review will serve to reinforce good practices as well as to address any observed quality gap in service delivery.
- Cost-effectiveness study of maternal healthcare services in Abuja, Nigeria is recommended to inform budget and plans to scale up coverage of interventions for women in Abuja, Nigeria.

5.5 CONTRIBUTION OF THE STUDY

Maternal health benefit encompasses interventions to reduce death related to pregnancy and its complications. Understanding the predictors (socioeconomic characteristics) of utilization of these interventions is important to optimize outcome for women. There were however, limited studies on the effect of socio-economic characteristics of women on maternal healthcare service utilization in Nigeria (Awusi et al 2009:22-23; Butawa et al 2010:72-75; Ibiwoye and Adeleke 2000:220; Lanre-Abbas 2008:sa), and the available studies did not focus on Abuja, Nigeria. The studies were limited in scope to few maternal healthcare services and often excluded contraceptive services, one of the service required to reduce the number of pregnancy in women. In addition, the studies from Nigeria did not include analysis of pattern of inequality in the utilization and pattern of expenditure for maternal healthcare services.

Unlike earlier studies, this research offers a comprehensive approach to explore the predictive effect of socio-economic factors on maternal healthcare service utilization in AMAC, Abuja Nigeria. The study included four range of maternal healthcare services required to confer maternal health benefit on women (McCarthy 1997:S18). The researcher is of the opinion that policy and programme review informed by the effect of multiple predictors (socio-economic characteristics) will result in more effective and equitable outcome for women than those that consider the influence of the socio-economic characteristics independently. This means that maternal health benefit is not only

dependent on availability of maternal healthcare services, but also on the predisposing and enabling factors of utilization among women as established in this study.

Operationalizing the recommendations from this study require policy dialogue with key stakeholders to develop guidelines on the coverage of maternal healthcare services in the NHIS, as well as approaches for the introduction of community based insurance scheme. In addition, key activities such as social mobilization targeted at adolescents and women with more than one birth, and monitoring of compliance to the standard operating procedure for maternal healthcare services be prioritized in the plan of action of the department of health in AMAC.

5.6 LIMITATIONS OF THE STUDY

The study was conducted among pregnant women attending ANC in public health facilities in Abuja Municipal Area Council (AMAC), one of the six area councils in Abuja Nigeria. The study excluded pregnant women that received services from private health facilities. These factors limit the generalization of the findings of the study to women in AMAC, Abuja Nigeria. However, the metropolitan nature of AMAC, the fact that more than half of the population of Abuja were resident in AMAC (NPC 2010a:36) and the large sample size strengthen the application of the findings of this study to women in Abuja, Nigeria.

The descriptive nature of the research design also limits the ability of this study to establish causal relationship between socio-economic characteristics and the utilization of maternal healthcare services. The multivariate analysis in this research however provided indication of the predictive effects of the different socio-economic characteristics of women included in this study as predisposing and enabling factors of utilization of maternal healthcare services in AMAC, Abuja Nigeria. Statistically significant relationships were also established between women with certain socio-economic characteristics and the utilization of specific maternal healthcare service or services. Further studies are however required to establish causal relationships (if any) between the variables.

5.7 CONCLUSION

This study has established factors contributing to the exclusion of women from maternal health benefit in AMAC. In establishing the factors, the conceptual framework was useful in defining the four maternal healthcare services required to achieve maternal health benefit. The findings of this study is however one of the few that challenged the expectation that women who were older, more educated, with higher birth order; or covered by health insurance have higher likelihood of utilizing maternal healthcare services. As such, this research opens up new policy and programme considerations as well as further studies required to optimize utilization of maternal healthcare services.

LIST OF REFERENCES

Abdulkadir, AY, Yunusa, GH, Tabari, AM, Anas, I, Ojo, JA, Akinlade, B, Suleman BM and Uyobong, I. 2011. Medical record system in Nigeria: observation from a multicenter auditing of radiographic request and patient's information documentation process. Journal of medicine and medical sciences, 2(5):854-858.

Abdulraheem, IS, Olapipo, AR and Amodu, MO. 2012. Primary health care services in Nigeria: critical issues and strategies for enhancing the use by rural communities. Journal of public health and epidemiology, 4(1): 5–13.

AbouZahr, C. 2003. Global burden of maternal death. British medical bulletin, 67:1-11.

Adanu, RMK. 2010. Utilization of obstetric services in Ghana between 1999 and 2003. African journal of reproductive health (Special issue), 14(3):153-158.

Adegoke, AA and van den Broek, N. 2009. Skilled birth attendance-lessons learnt. BJOG: an international journal of obstetrics and gynaecology, 116 (supplement 1):33-40.

Adeyi, O and Morrow, R. 1996. Concepts and methods for assessing the quality of essential obstetric care. International journal of gynaecology and obstetrics, 11:119–134.

Adwere-Boamah, J. [sa]. Multiple logistic regression analysis of cigarette use among high school students. Journal of case studies in education, [online]. Available Academic and business research institute website: <http://www.aabri.com/manuscripts/10617.pdf> (accessed 25 October, 2013).

Akpomuvie, OB. 2010. Poverty, access to health care services and human capital development in Nigeria. African research review, 4(3a):41–55.

- Aminu, A. 2000. Government wage policy and the dynamics of public-private sector wage differentials in Nigeria [online]. Available Institute for the study of labor website: http://www.iza.org/conference_files/worldb2008/aminu_a4295.pdf (accessed 20 March 2013).
- Andersen, R and Newman, JF. 2005. Societal and individual determinants of medical care utilization in the United States. The milbank quarterly, 83(4):1–28.
- Araoye, MO. 2003. Research methodology with statistics for health and social sciences. Ilorin: Nathadex publishers.
- Anoje, C, Aiyenigba, B, Suzuki, C, Apoigbe, K, Odo, M, Odafe, S, Adedokun, O, Torpey, K and Chabikuli, NO. 2012. Reducing mother-to-child transmission of HIV: findings from an early infant diagnosis program in south-south region of Nigeria. BMC public health, 12:184 [Online]. Available BioMed central open access publisher website <http://www.biomedcentral.com/1471-2458/12/184> (accessed 23 March 2012).
- Avidime, S, Aku-Akai, L, Mohammed, AZ, Adaji, S, Shittu, O and Ejembi, C. 2010. Fertility intentions, contraceptive awareness and contraceptive use among women in three communities in northern Nigeria. African journal of reproductive health (special issue), 14(3):65-70.
- Awusi, VO, Anyanwu, EB and Okeleke V. 2009. Determinants of antenatal care service utilization in Emevor village, Nigeria. Benin journal of postgraduate medicine, 11:21–26.
- Babalola, S and Fatusi, A. 2009. Determinants of use of maternal health services in Nigeria – looking beyond individual and household factors. BMC pregnancy and childbirth, 9 (43) [online]. Available BioMed central open access publisher website <http://www.biomedcentral.com/1471-2393/9/43> (accessed 7 February 2012).
- Babbie, E and Mouton, J. 2004. The practice of social research. South African edition. Cape Town: Oxford University Press.

Bankole, A, Sedgh, G, Okonofua, F, Imarhiagbe, C, Hussain, R and Wulf, D. 2009. Barriers to safe motherhood in Nigeria. New York: Guttmacher Institute.

Bergsjö, P. 2001. What is the evidence for the role of antenatal care strategies in the reduction of maternal mortality and morbidity? [CD-ROM]. Available University of South Africa. Department of Health Studies, Maternal and newborn health. Only Study Guide for MPHMANHE. Pretoria: UNISA.

Bhasker Rao, K., Harrison KA., and Bergstrom, S. [sa]. Organisation of maternity care in developing countries [CD-ROM]. Available University of South Africa. Department of Health Studies, Maternal and newborn health. Only Study Guide for MPHMANHE. Pretoria: UNISA.

Blencowe, H, Lawn, J, Vandelaer, J, Roper, M and Cousens, S. 2010. Tetanus toxoid immunization to reduce mortality from neonatal tetanus. International Journal of Epidemiology, 39:i10 –i109.

Borghi, J, Storeng, KT and Filippi, V. 2008. Overview of cost of obstetric care and economic and social consequences for household. Studies in health services organisation and policy, 24:23–46.

Braveman, P. 2006. Health disparities and health equity: Concepts and measurement. Annual Review of Public Health, 27:167–194.

Butawa, NN, Tukur, B, Idris, H, Adiri, F and Taylor, KD. 2010. Knowledge and perception of maternal health in Kaduna state, northern Nigeria. African journal of reproductive health (special issue), 14(3):71-76.

Carlough, M and McCall, M. 2005. Skilled birth attendance: what does it mean and how can it be measured? A clinical skills assessment of maternal and child health workers in Nepal. International journal of gynecology and obstetrics, 89:200–208.

Cleland, J, Bernstein, S, Ezeh, A, Faundes, A, Glasier, A and Innis, J. 2006. Family planning: the unfinished agenda in sexual and reproductive health 3. The Lancet, 368:1810–1827.

Cooper, DR and Schindler, PS. 2003. Business research methods. 8th edition. Boston: McGraw Hill.

De Maio, FG. 2007. Income inequity measures. Journal of epidemiology and community health, 61:849–852.

Defo, BK. 1997. Effect of socioeconomic disadvantage and women's status on women's health in Cameroons. Social science and medicine, 44 (7):1023–1042.

Di Mario, S, Basevi, V, Gori, G and Spettoli, D. 2005. What is the effectiveness of antenatal care? (supplement). [Online]. Available WHO Regional Office for Europe (Health Evidence Network report) website: <http://www.euro.who.int/Document/E87997.pdf> (accessed 3 October, 2007).

Doctor, HV, Bairagi, R, Findley, SE, Helleringer, S and Dahiru, T. 2011. Northern Nigeria maternal, newborn and child health programme: selected analyses from population-based baseline survey. The open demographic journal, 4:11–21.

Doctor, HV and Dahiru, T. 2010. Utilization of non-skilled birth attendants in Northern Nigeria: A rough terrain to the health-related MDGs. African journal of reproductive health (special issue), 14(3):37-45.

Ethington, B. [sa]. Multicollinearity. [online]. Available University of Memphis website: <https://umdrive.memphis.edu/yxu/public/Multicollinearity.pdf> (accessed 19th October, 2013).

Eurostat see Statistical office of the European Union (EU).

Federal Government of Nigeria. 1999. National health insurance scheme decree No. 35 of 1999 Laws of the Federal Government of Nigeria. Abuja: FGN Press.

Federal Government of Nigeria. 2011. National minimum wage (amendment) act 2011, explanatory memorandum. Abuja: FGN Press.

Federal Ministry of Health [Nigeria]. 2001. National reproductive health policy and strategy. Abuja: FMOH.

Federal Ministry of Health [Nigeria]. 2002. National reproductive health strategic framework and plan (2002 – 2006). Abuja: FMOH.

Federal Ministry of Health [Nigeria] 2003. National study on essential obstetric care facilities in Nigeria. Abuja: UNFPA.

Federal Ministry of Health [Nigeria]. 2004. Revised national policy on health. Abuja: FMOH.

Federal Ministry of Health. 2005. National HIV/AIDS and Reproductive Health Survey. Abuja: Society for Family Health.

Federal Ministry of Health. 2007a. National human resources for health strategic plan (2008 – 2012). Abuja: FMOH.

Federal Ministry of Health [Nigeria]. 2007b. National integrated maternal, newborn and child health strategy. Abuja: FMOH.

Federal Ministry of Health [Nigeria]. 2008. National HIV/AIDS and Reproductive Health Survey 2007 (NARHS Plus). Abuja: FMOH.

Federal Ministry of Health [Nigeria]. 2010a. Technical report National HIV sero-prevalence sentinel survey. Abuja: FMOH / NASCAP.

Federal Ministry of Health [Nigeria]. 2010b. National guidelines for the prevention of mother to child transmission of HIV (PMTCT). Abuja: FMOH.

Federal Ministry of Health [Nigeria]. 2010c. National strategic health development plan (NSHDP) 2010 - 2015. Abuja: FMOH.

Ferreira, A. 2008. National health insurance scheme: access to organized health service. [online]. Available Nigerian village square website:
<http://www.nigeriavillagesquare.com/articles/dr-abayomi-ferreira/nhis-access-to-organised-health-care-service.html> (accessed 22 March, 2011).

FGN see Federal Government of Nigeria.

FMOH see Federal Ministry of Health, Nigeria.

Grimes, DA and Schulz, KF. 2002. Descriptive studies: what they can and cannot do. The lancet, 359:145–49.

Health Research Foundation of Nigeria. 2006. Health care financing in Nigeria Chapter 11. In: Nigeria health review 2006. Abuja: HERFON.

HERFON see Health Reform Foundation of Nigeria.

Ibiwoye, A and Adeleke, IA. 2000. Does national health insurance promote access to quality health care? Evidence from Nigeria. The Geneva papers, 33:219–233.

Iliyasu, Z, Abubakar, IS, Galadanci, HS and Aliyu, MH. 2010. Birth preparedness, complication readiness and fathers' Participation in maternity care in a northern Nigerian community. African journal of reproductive health (special issue), 14(3):21-32.

Kirkwood, BR, and Sterne, JA. 2003. Essential medical statistics. (2nd Edition). Malden, Massachusetts: Blackwell publishing company.

Kistiana, S. 2009. Socio-economic and demographic determinants of maternal health care utilization in Indonesia. [online]. Available The center for international training and collaboration, National population and family planning board Indonesia website:

<http://www.uk.sagepub.com/burns/website%20material/Chapter%2024%20-%20Logistic%20regression.pdf> (accessed 28 January, 2012).

Kruk, ME, Galea, S, Prescott, M and Freedman, LP. 2007. Health care financing and utilization of maternal health services in developing countries. Health policy and planning, 22: 303–310.

Lanre-Abbas, BA. 2008. Poverty and maternal mortality in Nigeria: towards a more viable ethics of modern medical practice. International journal for equity in health 2008, 7:11 [Online]. Available BioMed central open access publisher website: <http://www.equityhealthj.com/content/7/1/11> (accessed 20 May, 2012).

Lawn, JE, Cousens, S and Zupan, J. 2005. 4 million neonatal deaths: when? where? why?. The Lancet, 365:891-900.

Liao, D and Valliant, R. 2012. Variance inflation factors in the analysis of complex survey data. Survey methodology, 38 (1): 53–62.

Logistic regression. [sa]. Chapter 24. [online]. Available Sage publishers website: <http://www.uk.sagepub.com/burns/website%20material/Chapter%2024%20-%20Logistic%20regression.pdf> (accessed 25th October, 2013).

London School of Hygiene and Tropical Medicine (LSHTM) and UNICEF. 2008. Equity: reaching the poor more effectively. Module 10. [CD Rom] Available London School of Hygiene and Tropical Medicine. Study Guide for Health Policy and Financing: achieving results for children course. London: LSHTM.

Lynch, JW, Smith, GD, Kaplan, GA, and House, JS. 2000. Income inequality and mortality: importance to health of individual income, psychosocial environment, or material condition. British medical journal, 320:1200 – 1204.

Maine D, Akalin, MZ, Ward VM and Kamara, A. 1997. The 3 delays model. In: The Design and Evaluation of Maternal Mortality Programs. New York: Centre for Population and Family Health, School of Public Health, Columbia University.

Mairiga, AG and Saleh, W. 2009. Maternal mortality at the state specialist hospital Bauchi, Northern Nigeria. East African medical journal, 86 (1):25–30.

Mastilica, M and Božikov, J. 1999. Out-of-pocket payments for health Care in Croatia: Implications for equity. Croatian medical journal, 40(2):152–159.

McCarthy, J. 1997. The conceptual framework of the prevention of maternal mortality network. International journal of gynecology and obstetrics, 59(2):S15–S21

Mekonnen, Y and Mekonnen, A. 2003. Factors influencing the use of maternal healthcare services in Ethiopia. Journal of health population and nutrition, 21(4):374–382.

Meng, Q, Yuan, B, Jia, L, Wang, J, Yu, B, Gao, J and Garner, P. 2011. Expanding health insurance coverage in vulnerable groups: a systematic review of options. Health policy and planning, 26:93–104.

Mojekwu, JN and Ibekwe, U. 2012. Maternal mortality in Nigeria: examination of the intervention methods. International journal of humanities and social sciences, 2(20):135–149.

Mouton, J. 2001. How to succeed in your Master's and Doctoral Studies: A South African guide and resource book. Pretoria: Van Schaik Publishers.

Nanda, G, Switlick, K and Lule, E. 2005. Accelerating progress towards the MDG to improve maternal health: a collection of promising practice. Health, nutrition and population discussion paper number 31969. Washington DC: The World Bank.

National Bureau of Statistics [Nigeria]. 2013. Monitoring the situation of women and children. Multiple cluster indicators survey 2011: main report. Abuja: UNICEF and UNFPA.

National Population Commission [Nigeria]. 2010a. Population distribution by sex, state, LGA and senatorial district. The 2006 population and housing census priority table volume (III). Abuja: NPC.

National Population Commission [Nigeria]. 2010b. Population distribution by age and sex. The 2006 population and housing census priority table volume (IV). Abuja: NPC.

National Population Commission [Nigeria] and ORC Macro. 2004. Nigeria demographic and health survey 2003. Calverton, Maryland: NPC and ORC / Macro.

National Population Commission [Nigeria] and ORC Macro. 2009. Nigeria demographic and health survey 2008. Calverton, Maryland: NPC and ORC / Macro.

National Population Commission [Nigeria] and ORC Macro. 2013. Preliminary report: Nigeria demographic and health survey 2013. Calverton, Maryland: NPC and ORC / Macro.

NBS see National Bureau of Statistics, Nigeria.

NPC see National Population Commission, Nigeria.

Nikie'ma, B, Beninguisse, G and Haggerty, JL. 2009. Providing information on pregnancy complications during antenatal visits: unmet educational needs in sub-Saharan Africa. Health policy and planning, 24:367–376.

O'Brien, RM. 2007. A caution regarding rules of thumb for variance inflation factors. Quality and quantity, 41:673–690.

O'Donnell, O, van Doorslaer, E, Wagstaff, A and Lindelow, M. 2008. Analyzing health equity using household survey data: a guide to techniques and their implementation. Washington DC: The International Bank for Reconstruction and Development / The World Bank.

Oguntunde, O, Aina, O, Ibrahim, MS, Umar, SU and Passano, P. 2010. Antenatal care and skilled birth attendance in three communities in Kaduna state, Nigeria. African journal of reproductive health (special issue), 14(3):89–96.

Okech, TC., Wawire, NW and Mburu, TK. 2011. Contraceptive use among women of reproductive age in Kenya's city slum. International journal of business and social sciences, 2(1): 22 – 43.

Okonofua, F. 2010. Reducing maternal mortality in Nigeria: An approach through policy research and capacity building. African journal of reproductive health (special issue), 14(3):9–13.

Oladapo, OT, Sule-Odu, AO, Olatunji AO, and Daniel, OJ. 2005. "Near-miss" obstetric events and maternal deaths in Sagamu Nigeria: a retrospective study. Reproductive health, 2:9 [Online]. Available BioMed central open access publisher website: <http://www.reproductive-health-journal.com/content/2/1/9> (accessed 8 December 2012).

Onakewhor, JU, Olagbuji, BN, Ande, AB, Ezeanochie, MC, Olokori OE and Okonofua, FE. 2011. HIV-AIDS related maternal mortality in Benin City, Nigeria. Ghana medical journal, 46(2): 54–59.

Onwujekwe, O, Uzochukwu, B, Eze, S, Obikeze, E, Okoli, C and Ochonma, O. 2008. Improving equity in malaria treatment: relationship of socio-economic status with health seeking as well as with perceptions of ease of using the services of different providers for the treatment of malaria in Nigeria. Malaria journal, 7(5):1-10.

Oyedokun, AO. 2007. Determinant of contraceptive usage: lessons from women in Osun state Nigeria. Journal of humanities and social sciences, 1(2): 1 – 14.

Patten, ML. 2002. Understanding research methods: an overview of the essentials. Los Angeles: Pyrczak publishing.

Pattinson, RC and Tlebere, PM. 2003. The how, when, where, what and why babies die in South Africa Chapter 1. In: Saving babies 2003. Fourth perinatal care survey of South Africa [CD-ROM]. Available University of South Africa. Department of Health Studies, Maternal and newborn health. Only Study Guide for MPMNHE. Pretoria: UNISA.

Reutter, L and Kushner, KE. 2010. 'Health equity through action on social determinants of health': taking up the challenge in nursing. Nursing inquiry 17(3):269–281.

Richard, F, Witter, S and De Brouwere, V. 2008. Reducing financial barriers to obstetric care in low-income countries: the need for action. Studies in health services organization and policy, 24:11–20.

Ronsmans, C and Graham, WJ. 2006. Maternal mortality: who, when, where and why and where. The Lancet, 368:1189–1200.

Say, L and Raine, R. 2007. A systematic review of inequalities in the use of maternal health care in developing countries: examining the scale of the problem and the importance of context. Bulletin of the World Health Organization, 85(10):812–819.

Statistical office of the European Union. 2010. Analysing the socioeconomic determinants of health in Europe: new evidence from EU-SILC. Eurostat's methodologies and working papers. Luxembourg: Publication office of the EU.

Soors, W, Waelkens, M and Criel, B. 2008. Community health insurance in sub-Saharan Africa: opportunity for improving access to emergency obstetric care?. Studies in health services organisation and policy, 24: 149–164.

The construction of Lorenz curve and of the Gini-coefficient to depict degree in inequality in health care. 2010. [Online]. Available Princeton University website: <http://www.princeton.edu/~reinhard/pdfs/597-F2009LORENZ-CURVES-AND-INEQUALITY-IN-HEALTH-CARE.pdf> (accessed 5 July, 2013).

Titaley, CR, Dibley, MJ and Roberts, CL. 2012. Type of delivery attendant, place of delivery and risk of early neonatal mortality: analyses of the 1994–2007 Indonesia demographic and health surveys. Health policy and planning, 27:405–416.

UN see United Nations.

UNICEF see United Nations Children's Fund.

UNFPA see United Nations Population Fund.

United Nations 2000. United Nations millennium declaration. In: Resolution adopted by the fifty-fifth General Assembly. New York: United Nations.

United Nations Children's Fund. 2006. Children living in poverty: overview of definitions, measurements and policies, edited by E. Delamonica, A. Minujin, A. Davidziuk and ED. Gonzalez. New York: UNICEF.

United Nations Children's Fund. 2009. The state of the world's children 2009: maternal and newborn health (executive summary). New York: UNICEF.

United Nations Children's Fund. 2011. Level three monitoring of strategic result areas (SRAs): explaining the concept and future work plan. New York: UNICEF.

United Nations Population Fund. 2004. Maternal health In: State of the world population 2004: the Cairo consensus at ten - population, reproductive health and global effort to end poverty. New York: UNFPA.

UNISA see University of South Africa.

University of South Africa. Department of Health Studies. 2005. Marksheet for MNURS1-E/001/2005 assignment 01. Pretoria: UNISA.

van Eijk, AM, Bles, HM, Odhiambo, F, Ayisi, JG, Blokland, IE, Rosen, DH, Adazu, K, Slutsker, L and Lindblade, KA. 2006. Use of antenatal services and delivery care among women in rural western Kenya: a community based survey. Reproductive health, 3 (2) [Online]. Available BioMed central open access publisher website: <http://www.reproductive-health-journal.com/content/3/1/2> (accessed 20 December 2012).

Wagstaff, A, Paci, P and van Doorslaer, E. 1991. On the measurement of inequalities in health. Soc. sci. med, 33(5):545–557.

Wilkinson, RG. 1997. Health inequalities: relative or absolute material standard?. British medical journal, 314: 591 – 595.

Wirth, ME, Balk, D, Delamonica, E, Storeygard, A, Sacks, E and Minujin, A. 2006. Setting the stage for equity-sensitive monitoring of the maternal and child health millennium development goals. Bulletin of the World Health Organization, 84 (7):519–527.

WHO see World Health Organization.

World Health Organization. 2003. Social determinants of health: the solid facts, edited by R Wilkinson and M Marmort. Copenhagen: WHO Regional Office for Europe.

World Health Organization. 2004. Maternal mortality in 2000: Estimates developed by WHO, UNICEF and UNFPA. Geneva: WHO.

World Health Organization. 2005. Attending to 136 million births, every year Chapter 4. In: The world health report 2005: Making every mother and child count. Geneva: WHO.

World Health Organization. 2006. Birth and emergency preparedness in antenatal care. Section 1.9 In: Standards for maternal and neonatal care. [Online]. Available WHO department of making pregnancy safer website: http://www.who.int/making_pregnancy_safer/publications/Standards1.9N.pdf (accessed 13 February 2007).

World Health Organization. 2010. Measuring maternal mortality. Chapter 2. In: Trends in maternal mortality: 1990 – 2008. Estimates developed by WHO, UNICEF, UNFPA and The World Bank. Geneva: WHO.

World Health Organization. 2011. WHO guidelines on preventing early pregnancy and poor reproductive outcome among adolescents in developing countries. Geneva: WHO.

World Health Organization. 2013. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendation for a public health approach. Geneva: WHO.

Zere, E, Tumusiime, P, Walker, O, Kirigia, J, Mwikisa, C and Mbeeli, T. 2010. Inequities in utilization of maternal health interventions in Namibia: implications for progress towards MDG 5 targets. International journal for equity in health, 9(16): 1 – 11.

Annex A: Research Questionnaire

SOCIO-ECONOMIC FACTORS CONTRIBUTING TO EXCLUSION OF WOMEN FROM MATERNAL HEALTH BENEFIT IN ABUJA, NIGERIA

A. INTRODUCTION

Urgent actions are required to improve the outcome for pregnant women in Nigeria through evidence based policy reform that addresses the different dimensions of maternal health. This questionnaire is part of a survey being conducted in fulfilment of the award of Doctor of Literature and Philosophy (DLitt. et Phil.) by the University of South Africa (UNISA), Pretoria South Africa.

- Information collected with this questionnaire will be treated as confidential and your answers will NEVER be associated with your name, as you are NOT required to provide your name in the tool.
- Giving honest information will help with the understanding of problems pregnant women are facing in access care during pregnancy, deliver and immediately after birth in Abuja, and assist to make appropriate recommendations to the relevant government agencies / parastatals.
- The information items to be collected are related to PAST history of contraception, pregnancy, delivery and care after delivery.

B. INSTRUCTIONS TO ENUMERATORS

1. The questionnaire consists of 4 sections and each section has a number of questions with multiple choice answers.
2. Please ask the respondents the questions and document their answers to each question, **BY TICKING** ✓ the boxes **OR BY CIRCLING** (2) the response codes that correspond to the chosen response.
3. Administer the consent form to the respondent and secure their consent prior to proceeding with the data collection.

Thank you very much for your cooperation.

IDENTIFICATION:

QIN

--	--	--	--

DISTRICT: _____

DISTRICT: (ASOKORO = 01, GARKI = 02, KARU = 03, MAITAMA = 04 & WUSE = 05)

LOCATION OF HOSPITAL: (URBAN = 1 RURAL = 2) _____

LANGUAGE OF INTERVIEW (ENGLISH = 1, HAUSA = 2)

SECTION 1: SOCIO ECONOMIC CHARACTERISTICS

Q/No	Questions	Response Option	Code	Skip	Leave Blank
1.1	Which of these age range best describes your age as at the last birthday?	<input type="checkbox"/> Less than 15 years <input type="checkbox"/> 15 – 19 years <input type="checkbox"/> 20 – 24 years <input type="checkbox"/> 25 – 29 years <input type="checkbox"/> 30 – 34 years <input type="checkbox"/> 35 – 39 years <input type="checkbox"/> 40 – 44 years <input type="checkbox"/> 45 years and older	1 2 3 4 5 6 7 8		[]
1.2	Have you ever attended school before?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	IF NO, Skip TO 1.4	[]
1.3	What is your highest educational level?	<input type="checkbox"/> Did not complete Primary Education <input type="checkbox"/> Completed primary education <input type="checkbox"/> Did not complete junior secondary education <input type="checkbox"/> Completed junior secondary education <input type="checkbox"/> Did not complete senior secondary education <input type="checkbox"/> Completed senior secondary education <input type="checkbox"/> More than secondary education	1 2 3 4 5 6 7		[]
1.4	For how long have you lived in your current household ⁷ ?	<input type="checkbox"/> Less than 6 month <input type="checkbox"/> 6 months to 12 month <input type="checkbox"/> More than 12 months	1 2 3		[]
1.5	How many people including yourself live in the house where you have lived for more than 12 months?	<input type="checkbox"/> Less than 2 people <input type="checkbox"/> 2 people <input type="checkbox"/> 3 – 4 people <input type="checkbox"/> 5 – 6 people <input type="checkbox"/> More than 6 people	1 2 3 4 5		[]

⁷ Explain household as the total number of people that eat from the same pot.

Q/No	Questions	Response Option	Code	Skip	Leave Blank
1.6	What is your status in this household	<input type="checkbox"/> Mother <input type="checkbox"/> Sister <input type="checkbox"/> Daughter <input type="checkbox"/> Relative <input type="checkbox"/> Friend <input type="checkbox"/> Others, specify _____	1 2 3 4 5 99		[]
1.7	In the last 24 months, how will you estimate the total cash income of your household per month (when you add up the income of all people working in your household)? [Write the amount]	Naira			[]
1.8	Please indicate your current marital status?	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widow	1 2 3 4		[]
1.9	How many children do you have?	<input type="checkbox"/> None <input type="checkbox"/> 1 – 2 Children <input type="checkbox"/> 3 – 4 Children <input type="checkbox"/> 5 children or more	1 2 3 4	If None, Skip to 1.11	[]
1.10	Do you currently live with your children?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2		[]
1.11	What is the name of the street where the household you lived for more than 12 months was located? [Pls. write out the address number]				
1.12	How will you describe the location of the household where you lived for more than 12 months was located?	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	1 2		[]
1.13	Is this the location where you lived during your last pregnancy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If Yes, Skip to 1.16	[]
1.14	What is the name of the street where the household you lived during your last pregnancy was located? [Pls. write out the address number]				
1.15	How will you describe the location of the the household where you lived during your last pregnancy was located?	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	1 2		[]

Q/No	Questions	Response Option	Code	Skip	Leave Blank
1.16	Have you done any work in the last 24 months/	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No, Skip to 1.18	[]
1.17	How will you describe your occupation/	<input type="checkbox"/> Professional / Technical / Managerial <input type="checkbox"/> Clerical Job <input type="checkbox"/> Sales and Services <input type="checkbox"/> Skills Manual Job <input type="checkbox"/> Unskilled Manual Job <input type="checkbox"/> Agricultural <input type="checkbox"/> Housewife <input type="checkbox"/> Others, Pls. specify _____	1 2 3 4 5 6 7 99		[]
1.18	What is your religion?	<input type="checkbox"/> Catholic <input type="checkbox"/> Other Christians <input type="checkbox"/> Islam <input type="checkbox"/> Traditional Religion <input type="checkbox"/> Others, pls. specify _____	1 2 3 4 99		[]
1.19	What is your broad Ethnic Groups?	<input type="checkbox"/> Hausa <input type="checkbox"/> Ibo <input type="checkbox"/> Yoruba <input type="checkbox"/> Others, please specify _____	1 2 3 99		[]
1.20	What is your state of origin? [Pls. write the name of the state]				

SECTION 2: CONTRACEPTION

Q/No	Questions	Response Option	Code	Skip	Leave Blank
2.1	Have you ever heard of contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No Skip To 2.3	[]
2.2	Which of the following is correct? [Tick All responses]	<input type="checkbox"/> Women can have an operation to avoid being pregnant <input type="checkbox"/> Men can have an operation to avoid being pregnant <input type="checkbox"/> Women can take pills every day to avoid being pregnant <input type="checkbox"/> Women can have a loop or coil placed inside them by a doctor or nurse <input type="checkbox"/> Women can have an injection by a health provider to stop them from becoming pregnant for one or more years <input type="checkbox"/> Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years <input type="checkbox"/> Men can put a rubber sheath on their penis before sexual intercourse <input type="checkbox"/> Women can place a sheath in their vagina before sexual intercourse <input type="checkbox"/> Women can place a thin flexible disk in their vagina before intercourse <input type="checkbox"/> Women can place a suppository, jelly or cream in their vagina before up to 6 months after child birth, a woman can use a method that requires that she breast feeds frequently, day and night and her menstrual period will not come <input type="checkbox"/> Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant <input type="checkbox"/> Men can be careful and pull out before climax <input type="checkbox"/> As an emergency measure after unprotected sexual intercourse, women can take special pills at any time within five days to prevent pregnant	1 2 3 4 5 6 7 8 9 10 11 12 13		[]
2.3	Have you ever used any form of contraception?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No Skip To 3.1	[]
2.4	Which one have you ever used? [Tick ALL responses]	<input type="checkbox"/> Pills <input type="checkbox"/> IUD <input type="checkbox"/> Injectable <input type="checkbox"/> Implants <input type="checkbox"/> Male Condom <input type="checkbox"/> Female Condom <input type="checkbox"/> Diaphragm <input type="checkbox"/> Foam or Jelly <input type="checkbox"/> Lactational Amenorrhea <input type="checkbox"/> Rhythm method <input type="checkbox"/> Withdrawal method <input type="checkbox"/> Emergency Contraception <input type="checkbox"/> Traditional Method, please specify	1 2 3 4 5 6 7 8 9 10 11 12 99		[]

Q/No	Questions	Response Option	Code	Skip	Leave Blank
2.5	The last time you obtained contraception, which one did you use? [Tick only ONE response]	<input type="checkbox"/> Pills <input type="checkbox"/> IUD <input type="checkbox"/> Injectable <input type="checkbox"/> Implants <input type="checkbox"/> Male Condom <input type="checkbox"/> Female Condom <input type="checkbox"/> Diaphragm <input type="checkbox"/> Foam or Jelly <input type="checkbox"/> Lactational Amenorrhea <input type="checkbox"/> Rhythm method <input type="checkbox"/> Withdrawal method <input type="checkbox"/> Emergency Contraception <input type="checkbox"/> Traditional Method, please specify	1 2 3 4 5 6 7 8 9 10 11 12 99		[]
2.6	How long did you use the method mentioned above in question 2.5?	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1 – 2 years <input type="checkbox"/> 3 – 4 years <input type="checkbox"/> More than 4 years	1 2 3 4		[]
2.7	Where (which facility) did you obtain your last contraceptive method?	<input type="checkbox"/> Local store <input type="checkbox"/> Pharmaceutical store <input type="checkbox"/> Health Post / Health centre <input type="checkbox"/> Hospital <input type="checkbox"/> Others, please specify	1 2 3 4 99		[]
2.8	The last time you obtain contraception, how much did you pay out-of-your pocket in total including the cost of the method and any consultation you may have had? [Write the amount]	Naira:			[]
2.9	How far was your house from this facility?	<input type="checkbox"/> Less than 15 minutes by walking <input type="checkbox"/> 15 – 30 minutes by motorcycle / car <input type="checkbox"/> More than 30 minutes by motorcycle / car	1 2 3	If less than 15 min walk Skip to 2.12	[]
2.10	The last time you obtain contraception, how much did you pay out-of-your pocket for transportation to the facility from your home? [Write the amount]	Naira:			[]
2.11	On a scale of 3, how will you rate your satisfaction of the contraceptive service received at the facility?	<input type="checkbox"/> Satisfied <input type="checkbox"/> Average <input type="checkbox"/> Not satisfied	1 2 3		[]

SECTION 3: PAST PREGNANCY AND POSTNATAL CARE

Q/No	Questions	Response Option	Code	Skip	Leave Blank
3.1	When was your last pregnancy?	<input type="checkbox"/> Less than 1 year ago <input type="checkbox"/> 1 to 2 years ago <input type="checkbox"/> 3 to 4 years ago <input type="checkbox"/> More than 4 years ago	1 2 3 4		[]
3.2	During your last pregnancy, did you see anyone for antenatal care?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No Skip to 3.11	[]
3.3	Who was the person that provided you with antenatal care during your last pregnancy?	<input type="checkbox"/> Doctor <input type="checkbox"/> Nurse / Mid wife <input type="checkbox"/> Auxiliary nurse <input type="checkbox"/> Traditional Birth attendant <input type="checkbox"/> Others, please specify	1 2 3 4 99		[]
3.4	Where did you receive antenatal care for your last pregnancy?	<input type="checkbox"/> At home <input type="checkbox"/> Public (government) hospital <input type="checkbox"/> Private hospital <input type="checkbox"/> Others, please specify	1 2 3 99		[]
3.5	How far was your house from this facility where you received antenatal visit during your last pregnancy?	<input type="checkbox"/> Less than 15 minutes by walk <input type="checkbox"/> 15 – 30 minutes by motorcycle / car <input type="checkbox"/> More than 30 minutes by motorcycle / car	1 2 3	If less than 15 min walk, Skip to 3.7	[]
3.6	During your last pregnancy, how much did you pay for transportation to the facility from your home each time you went for ANC clinic? [Write the amount]	Naira:			[]
3.7	How many months pregnant were you when you first received antenatal care during your last pregnancy?	<input type="checkbox"/> 1 to 3 months <input type="checkbox"/> 4 to 6 months <input type="checkbox"/> 6 to 9 months	1 2 3		[]
3.8	How many times did you receive antenatal care during your last pregnancy?	<input type="checkbox"/> Once <input type="checkbox"/> Twice <input type="checkbox"/> Thrice <input type="checkbox"/> Four times <input type="checkbox"/> More than four times	1 2 3 4 5		[]
3.9	During your last pregnancy, were you told about signs of pregnancy complications during antenatal care?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know	1 2 3		[]
3.10	On a scale of 3, how will you rate your satisfaction of the antenatal care you received during your last pregnancy?	<input type="checkbox"/> Satisfied <input type="checkbox"/> Average <input type="checkbox"/> Not satisfied	1 2 3	After Answering, Skip to 3.12	[]
3.11	Why did you not receive antenatal care during your last pregnancy: [Tick ALL Response for YES Answer]	<input type="checkbox"/> Cost was too much <input type="checkbox"/> The Facility was not open / too far / no transportation <input type="checkbox"/> Don't trust facility / poor quality <input type="checkbox"/> Husband did not allow <input type="checkbox"/> Not necessary <input type="checkbox"/> Others, please specify	1 2 3 4 5 99		[]

Q/No	Questions	Response Option	Code	Skip	Leave Blank
3.12	Did you carry the last pregnancy to term?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No, Skip To 3.26	[]
3.13	During your last pregnancy, where did you deliver?	<input type="checkbox"/> Home <input type="checkbox"/> Public / Government Health facility <input type="checkbox"/> Private Health Facility <input type="checkbox"/> Others, please specify	1 2 3 99	If home or others Skip to 3.15	[]
3.14	During the last pregnancy in any health facility, who assisted in your delivery?	<input type="checkbox"/> Doctor <input type="checkbox"/> Nurse / Midwife <input type="checkbox"/> Auxiliary nurse <input type="checkbox"/> Others, please specify	1 2 3 99	After Answering, Skip to 3.17	[]
3.15	During the last pregnancy at home or other locations, who assisted in your delivery?	<input type="checkbox"/> Traditional birth attendant <input type="checkbox"/> Relatives / Friends <input type="checkbox"/> Others, please specify	1 2 99		[]
3.16	Why did you not deliver in a health facility? [Tick ALL Response for YES Answer]	<input type="checkbox"/> Cost was too much <input type="checkbox"/> The facility was not open / too far / no transportation <input type="checkbox"/> Don't trust facility / poor quality <input type="checkbox"/> Husband did not allow <input type="checkbox"/> Not necessary <input type="checkbox"/> Others, please specify	1 2 3 4 5 99		[]
3.17	After the delivery of your last child, did any service provider check your health?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No, Skip To 3.20	[]
3.18	How long after your last delivery was your health checked?	<input type="checkbox"/> Less than 24 hours <input type="checkbox"/> 1 to 3 Days <input type="checkbox"/> 4 to 7 Days <input type="checkbox"/> More than 1 week	1 2 3 4		[]
3.19	Who was the service provider that checked your health after your last delivery?	<input type="checkbox"/> Doctor <input type="checkbox"/> Nurse / Midwife <input type="checkbox"/> Auxiliary nurse <input type="checkbox"/> Traditional birth attendant <input type="checkbox"/> Others, please specify	1 2 3 4 99		[]
3.20	Did you deliver in the same facility (any facility) where you had antenatal care?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If Yes, Skip to 3.22	[]
3.21	How much did you pay for transportation to this other facility from your home for your last delivery? [Write the amount]	Naira:			[]
3.22	During your last delivery, did you experience any complications?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	1 2 3		[]
3.23	was / were the child / children from your last delivery born alive?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2		[]

Q/No	Questions	Response Option	Code	Skip	Leave Blank
3.24	During your last pregnancy and delivery (irrespective of the outcome), how much did you pay (out-of your pocket) for consultation, drugs, laboratory test and any other fee in the facility? [Write the amount]	Naira:			[]
3.25	How many times have you ever given birth (including your last pregnancy experience) before now?	<input type="checkbox"/> Once <input type="checkbox"/> 2 to 4 times <input type="checkbox"/> More than 4 times	1 2 3		[]
3.26	Did you have any miscarriage or abortion during your last pregnancy?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2		[]
3.27	On a scale of 3, how will you rate your satisfaction of the delivery care you received during your last delivery?	<input type="checkbox"/> Satisfied <input type="checkbox"/> Average <input type="checkbox"/> Not satisfied	1 2 3		[]
3.28	Have you ever had a pregnancy that miscarried, was aborted or ended in a still birth?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2		[]
3.29	How many of such pregnancy have you ever experienced? [Please write the number]	<input type="checkbox"/> 1 to 3 <input type="checkbox"/> 4 to 6 <input type="checkbox"/> 6 to 9	1 2 3		[]

SECTION 4: HEALTH INSURANCE SCHEME

Q/No	Questions	Response Option	Code	Skip	Leave Blank
4.1	Are you covered by any form of insurance?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2		[]
4.2	Were you on any form of insurance during the time you took your last contraceptive service?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No, Skip to 4.4	[]
4.3	Did your insurance as at that time cover the cost of the contraceptive services (partial or full cost)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	1 2 3		[]
4.4	Were you on any form of insurance during your last pregnancy and delivery?	<input type="checkbox"/> Yes <input type="checkbox"/> No	1 2	If No End Interview	[]
4.5	Did your insurance as at that time cover the cost of your antenatal care, delivery and postnatal care (partial or full cost)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	1 2 3		[]
4.6	What type of Insurance did you have at that time? [Tick ALL Responses]	<input type="checkbox"/> Community Based Health Insurance including through spouse <input type="checkbox"/> Health Insurance provided by the employer including through spouse <input type="checkbox"/> Private / commercial health insurance including through spouse <input type="checkbox"/> Others, please specify	1 2 3 99		[]

Thank You for Completing the Questionnaire.

Annex B: Record of Informed Consent

Good morning/afternoon. My name is _____ and I am working with **Dr. Tajudeen Oyewale**, a student at the Department of Health Studies, University of South Africa. We are conducting a study on the Socio-Economic Factors Contributing to the Exclusion of Women from Maternal Health Benefits in Abuja, Nigeria. This study has been approved by the Department of Health of the Federal Capital Territory Administration and the Ethics Committee of the University of South Africa.

Participation in this study is voluntary and I would like to assure you that everything you say will be kept confidential and your identity will not be revealed to anyone. The interview may touch on issues you may feel uncomfortable with or you would prefer not to discuss, please feel free to say so. I will not be offended and there will be no negative consequences if you would prefer not to answer a question. I would appreciate your guidance should I ask anything which you see as intrusive. Your views are very important and your honest participation will greatly assist in achieving the goals of this study. We would very much appreciate your participation in this survey. This information will help the government to plan better health services for women in Abuja, Nigeria. The survey usually takes between 20 and 30 minutes to complete.

At this point, do you have any question/s about the study? Also, in case you have additional questions about the study after I might have left, you can contact Dr. Tajudeen Oyewale e-mail yemioyewale@yahoo.co.uk or Prof TR Mavundla, Department of Health, University of South Africa e-mail: mavuntr@unisa.ac.za

Do you AGREE that I go ahead and interview you / your relation⁸? (Please Tick the box)

☐ Yes

☐ No

Signature of Interviewer:

Date of Interview:

⁸ For Respondents who are younger than 18 years

**Annex C: Ethical Clearance from Federal Capital Territory (FCT) - Abuja Health
Research Ethics Committee (FHREC)**

Z



**FEDERAL CAPITAL TERRITORY
HEALTH RESEARCH ETHICS COMMITTEE**

Research Unit, Room 10, Block A Annex, HHSS
FCT Secretariat No. 1 Kaituma Street Area 11, Garki, Abuja - Nigeria

Name of Principal Investigator: Dr. Tajudeen Oyeyemi Oyewale
Address of Principal Investigator: Plot 756 Abubakar Usman Crescent, Jabi Abuja
Date of receipt of valid application: 30-1-2012

NOTICE OF APPROVAL AFTER COMMITTEE REVIEW

Protocol Approval Number: FHREC/2012/01/03/21 - 3 - 12

TITLE: Factors Contributing to Exclusion of Women from Maternal Health Benefit in Abuja, Nigeria
The research described in the submitted protocol has been reviewed.

Documents Reviewed:

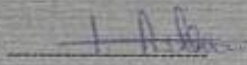
- (1) Application form, including:
 - * Curriculum Vitae of the Investigator
- (2) Research Protocol including:
 - * Questionnaire
 - * Research Information Sheet
 - * Consent Form

On the basis of the review, this research has been approved by the Committee (FHREC). Subsequent changes are not permitted in this research without prior approval by the FHREC.

This approval dates from 21/03/2012 to 20/03/2013. Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry FHREC assigned protocol approval number and duration of FHREC approval of the study.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly. The FHREC reserves the right to conduct compliance visit to your research site without previous notification.

In multiyear research, endeavor to submit your annual report to the FHREC early in order to obtain renewal of your approval and avoid disruption of your research. At the end of the research, a copy of the final report of the research should be forwarded to FHREC for record purposes.


Ikwabola S. Adem
Secretary, FHREC
February, 2012

**Annex D: Ethical Clearance University of South Africa Health Studies Higher Degree
Committee (HSHDC), College of Human Sciences**



**UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
(HSHDC)
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE**

Date of meeting: 14 September 2011 Project No: 3531-159-2

Project Title: Socio-economic factors contributing to exclusion of women from
maternal health benefit in Abuja, Nigeria

Researcher: Dr TO Oyewale

Degree: D Litt et Phil Code: DPCHS04

Supervisor: Prof TR Mavundla
Qualification: D Litt et Phil
Joint Supervisor: -

DECISION OF COMMITTEE

Approved



Conditionally Approved



Prof E Potgieter

CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MC Bezuidenhout

ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES